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# Improving Quality of Care in Rheumatoid Arthritis and associated comorbidities

North America

# Terms of reference

## Terms of reference:

The purpose of this report is to document global good practice care in Rheumatoid Arthritis. This report was commissioned and funded by Sanofi US Services Inc. ("Sanofi"). KPMG LLP ("KPMG") has had sole responsibility for its contents and editorial oversight. Sanofi had no role in collection, management, analysis or interpretation of data, or preparation of the final report

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— Rheumatologists and other healthcare professionals: Rheumatologists and other healthcare professionals (e.g., comorbidity specialists and allied healthcare professionals) were engaged to review center report findings and provide feedback on the findings in this report. All experts that were consulted were invited to help shape the final report

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**Note**: Refer to 'Additional Notes on Methodology: Contributor roles and responsibilities' on page 69 for further information

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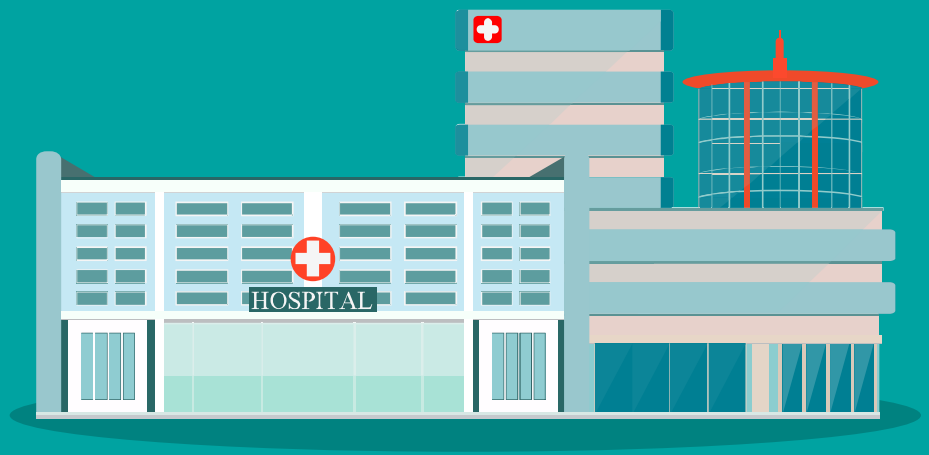
# Foreword



# Foreword

Rheumatoid arthritis (RA), a chronic inflammatory disease, can have a significant influence on the quality of life of patients and their support network. Restrictions and burdens that arise in daily activities can place a considerable time, psychological and financial strain on the patient.

RA and its long term impact continue to affect a growing number of people in North America and around the world. I am excited to see a sustained growing interest towards managing the burden of RA and preventing a decline in patient quality of life

Throughout the United States and Canada, care teams and patient groups are developing programs to raise awareness of RA and promote earlier diagnosis of the condition. New therapies, medical and non-medical, are transforming how RA is treated for the long term. To realize the positive results of these efforts, the current patient pathway needs to adapt to these new initiatives. To overcome the challenges that will be faced, proactive collaboration will be of paramount importance

I welcome the release of this report, in which KPMG has documented examples of excellence in care from nine centers across North America, where committed teams are tackling RA-associated challenges in innovative ways. I hope these examples inspire readers to advance their own services, and ultimately improve the quality of care provided for patients living with RA

**Professor Mary Crow,**
**Hospital for Special Surgery, NYC**






Contents

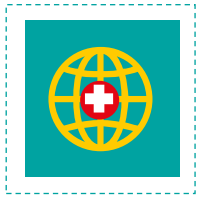
Contents

# Executive summary

# The Quality of Care initiative aims to improve RA patient care across North America

**By exploring, documenting and sharing features of good practice in caring for RA and associated comorbidities, the initiative aims to ensure all patients globally can benefit from the best care possible**

## Aims



Drive improvements in quality of care through the identification and documentation of RA-specific interventions

Support centers in North America in their pursuit of delivering standardized high quality care

Establish a large and engaged network of RA experts passionate about raising the standard of RA care

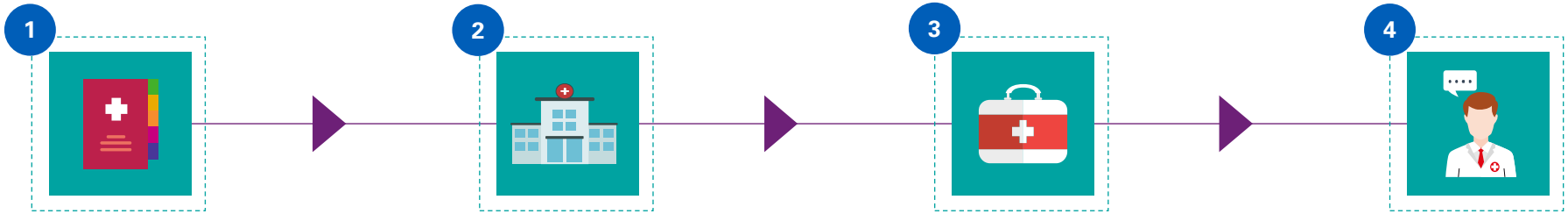
Facilitate greater collaboration between rheumatologists, specialists and other HCPs

Empower patients through the promotion of active involvement and participation in disease management

Raise awareness of the current challenges faced in the treatment and management of RA

# Through an established methodology, KPMG conducted a comprehensive examination of RA care

## In order to find and document good practice recommendations, KPMG combined primary and secondary research with guidance from experts in RA and its associated comorbidities




### Conduct literature review

Review published evidence to understand the challenges and good practices in the care and management of RA and associated comorbidities

### Visit centers

Identify range of centers providing RA care across North America

Observe and document the challenges in care and examples of good practice in prominent centers across Northern America

### Synthesize findings

Document interventions specific to each center by collaborating with the centers visited

Collate and arrange findings from the literature review and observational center visits by commonalities in order to identify the key good practice interventions

### Review from experts

Facilitate expert reviews of the center reports and the final report to:

- Ensure the findings capture the key challenges and gaps in the care of RA and associated comorbidities
- Test how applicable and relevant the interventions identified are to HCPs and centers across North America

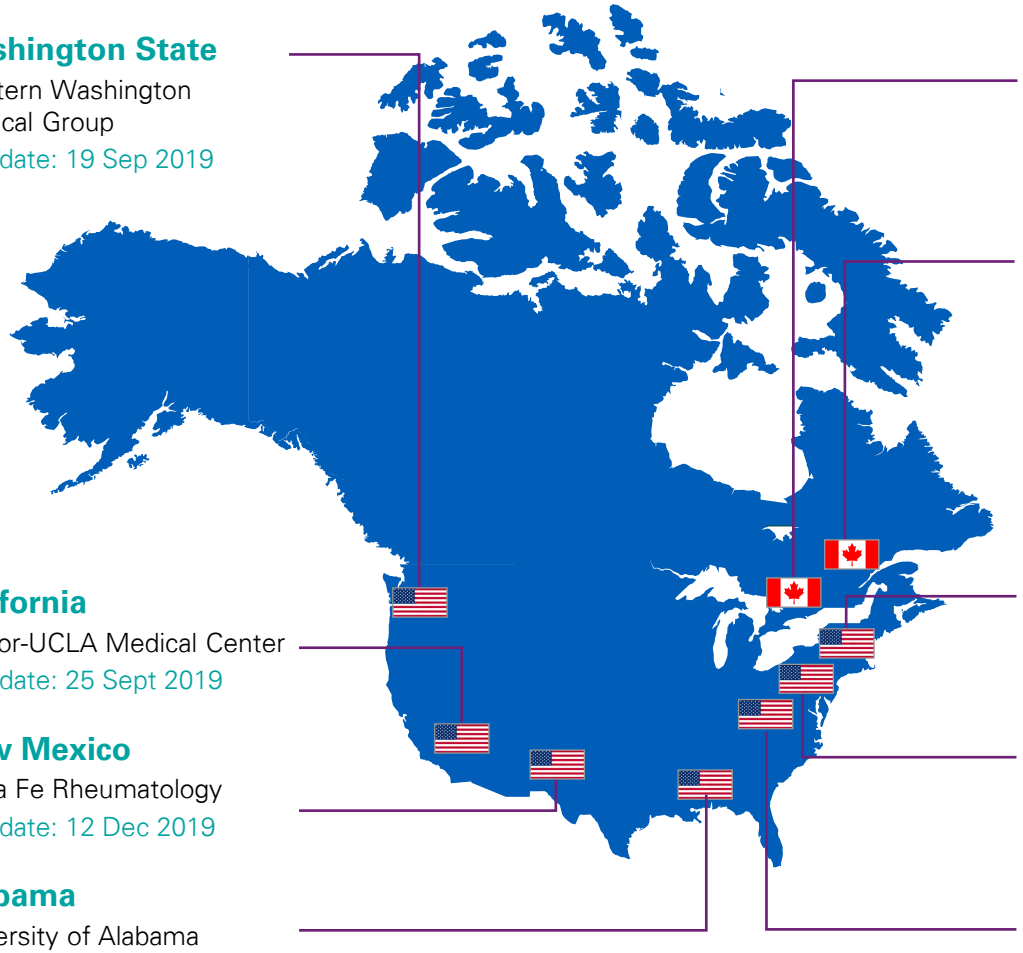
**Note:** (1) Please refer to 'Additional Notes on Methodology: Center Selection' on page 70 for the detailed selection criteria

# To identify and document examples of good practice in RA care, nine centers across North America were visited

Secondary research was performed to identify nine centers to take part in the initiative.[1] A variety of centers were selected, depending on their geography, degree of RA focus and type of practice. As a result, a range of different hospitals and community practices were involved

Centres ranged from public to private, large to small, urban to rural, and academic to non-academic healthcare providers

**For further information, please see slides 70 and 71 for 'Center selection' and 'Limitations to our methodology'**



**Washington State**
Western Washington Medical Group
Visit date: 19 Sep 2019

**California**
Harbor-UCLA Medical Center
Visit date: 25 Sept 2019

**New Mexico**
Santa Fe Rheumatology
Visit date: 12 Dec 2019

**Alabama**
University of Alabama at Birmingham Hospital
Visit date: 11 Feb 2020

**Ontario**
Southlake Regional Health Centre
Visit date: 10 Dec 2019

**Quebec**
Rheumatology Institute of Montreal
Visit date: 13 Nov 2019

**Pennsylvania**
Geisinger
Visit date: 26 Aug 2019

**New York**
Hospital for Special Surgery
Visit date: 9-11 Sep 2019

**New York**
Grace C Wright MD PC
Visit date: 4 Mar 2020

**Note**: (1) Please refer to 'Additional Notes on Methodology: Center Selection' on page 70 for the detailed selection criteria

# A number of challenges were identified across the patient pathway



| | Awareness & Prevention<br>Symptom identification | Referral & Diagnosis<br>In secondary care | Treatment & Management<br>Pharmacological management | Treatment & Management<br>Non-pharmacological management | Follow-up<br>Monitoring of chronic disease/flare up |
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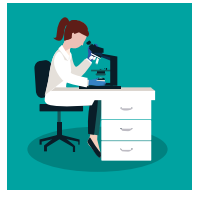
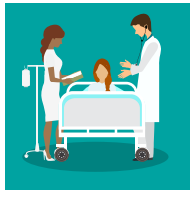
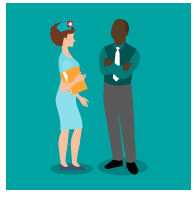
| |  |  |  |  |  |
| **Gaps in care** | — Delay in patients seeking medical advice[a] | — Delay in referral from PCP to rheumatologist[a]<br>— Delay in diagnosis[a] | — Delay in treatment initiation[a]<br>— Limited patient adherence to therapy[c][d] | — Lack of coordinated treatment[e]<br>— Limited access to specialists for non-pharmaceutical treatment (e.g., occupational therapist)[b] | — Lack of monitoring[f]<br>— Suboptimal patient outcomes[g] |
| **Evidence** | — On average patients wait 3 months between the onset of their symptoms and their first consultation[a] | — Patients are delayed by 2 months on average between their first consultation and referral to a rheumatologist[a]<br>— Patients face a delay on average of 3 months between first consultation with a rheumatologist and patient diagnosis of the condition[a] | — Following diagnosis, patients on average wait 2 months before they start treatment for RA. Since first onset of symptoms, this process takes just under a year[a]<br>— Patient adherence to treatment varies widely from 30 – 80%[d] | — In a study from a rural and Northern Canadian province, only 53% and 26% of RA patients had reported being seen by a physiotherapist or an occupational therapist respectively[b] | — A British Colombian study of RA reported that only 48% and 34% of RA patients had seen a rheumatologist over the past 5 and 2 years respectively[f]<br>— Only 26% of patients were reported as satisfied with their RA treatment in a US study[g] |

**Notes**: These gaps were identified and verified through the literature review and site visits

**References**: (a) Barhamain A, et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms. *Open Access Rheumatol.* 2017;9:139-150; (b) Nair BV, et al. Self-reported barriers to healthcare access for rheumatoid arthritis [patients in rural and Northern Saskatchewan: A mixed methods study. *Musculoskeletal care.* 2016;14(4):243-251; (c) Marengo M, et al. Improving treatment adherence in patients with rheumatoid arthritis: what are the options? *Int J Clin Rheumtol.* 2015;10(5):345-356; (d) van den Bemt BJ, et al. Medication adherence in patients with rheumatoid arthritis: a critical appraisal of the existing literature. *Expert Rev Clin Immunolo.* 2012;8(4):337-51; (e) Marion CE, et al. Potential advantages of interprofessional care in rheumatoid arthritis. *J Manag Care Pharm.* 2011;17(9):25-9; (f) Lacaille D, et al. Gaps in case for Rheumatoid Arthritis: a population study. *Arthritis & Rheumatology* 2005;53(2):241-8; (g) Radawski C, et al. Patient perceptions of unmet medical need in rheumatoid arthritis: A cross-sectional survey in the USA. *Rheumatol Ther.* 2019;6(3):461-47

# Eight good practice interventions were identified and seen across the centers visited

## 1 Proactively providing psychosocial care

Curation of processes and environment to support psychosocial management of RA patients

## 2 Providing holistic comorbidity management and care

Active assessment and treatment of RA associated comorbidities to improve Quality of Life

## 3 Improving patient self-management strategies

Providing patients and their support network (care givers and relatives) education and open communication to improve their understanding of RA and ability to self-manage the disease

## 4 Streamlining specialist care and treatment

Fast-tracked patient pathways and processes to support the assessment and diagnosis of RA patients (including Early Arthritis Clinics)

## 5 Enabling patient access to optimal medication regimes

Minimizing funding barriers to medication and therapies for patients with limited financial resources

## 6 Sharing patient care to improve outcomes

Managing the care of patients better through enabling and empowering healthcare professionals (e.g., nurses and pharmacists) to support physicians

## 7 Enhancing quality of care provided through technology and data

A coordinated, data-driven approach to monitoring and evaluating RA care quality through technology at the center or amongst the wider network

## 8 Delivering high quality patient care through HCP education

Enabling HCP education to improve the diagnosis or care of RA patients



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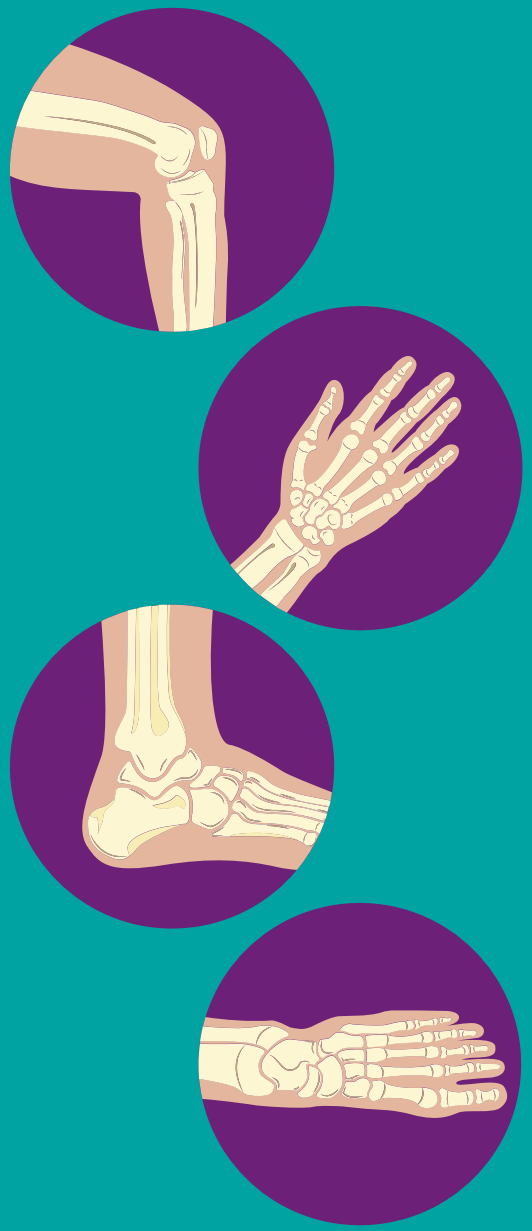
# Objectives



# The initiative aims to improve the management of RA in North America

## The report aims to:

Understand what good practice care of RA and associated comorbidities looks like

Highlight recommendations and good practices for the management (prevention, detection and treatment) of RA and its associated comorbidities

Support provision of good practice care for patients in North America and around the world

**The goal of our project is to define good practices in holistic care for RA, and to compile these into a report which may be used to support the provision of good practice care for patients in North America and around the world**

# Context

# Rheumatoid arthritis is a chronic inflammatory autoimmune condition, with a wide impact on morbidity



## Definition

Rheumatoid arthritis (RA) is a chronic inflammatory disease characterized by joint swelling, joint tenderness, and destruction of synovial joints, with a severe disability, comorbidity and mortality impact[a]

## Causes

RA is caused by a combination of genetic and environmental factors[b]

## Symptoms

Symptoms present in the joints, connective tissues, muscle, tendons, and fibrous tissue in a characteristic symmetric pattern[a][d]

## Prevalence

- RA is the most common inflammatory arthritis and affects about 1% of the population[b]
- ~1.3 million Americans[e] and ~300,000 Canadians[c] are diagnosed with RA
- Women are two to three times more likely to get RA than men. The lifetime risk of developing RA in men and women is 3.6% and 1.7% respectively[e]

## Diagnosing RA

'Diagnosed RA'[a] is based on the following:

- Confirmed presence of synovitis in at least 1 joint
- Absence of an alternative diagnosis
- A total score ≥ 6/10 from the following 4 domains:
  1. Number and site of involved joints (0-5)
  2. Serologic abnormality (0-3)
  3. Elevated acute-phase response (0-1)
  4. Symptom duration (2 levels; 0-1)

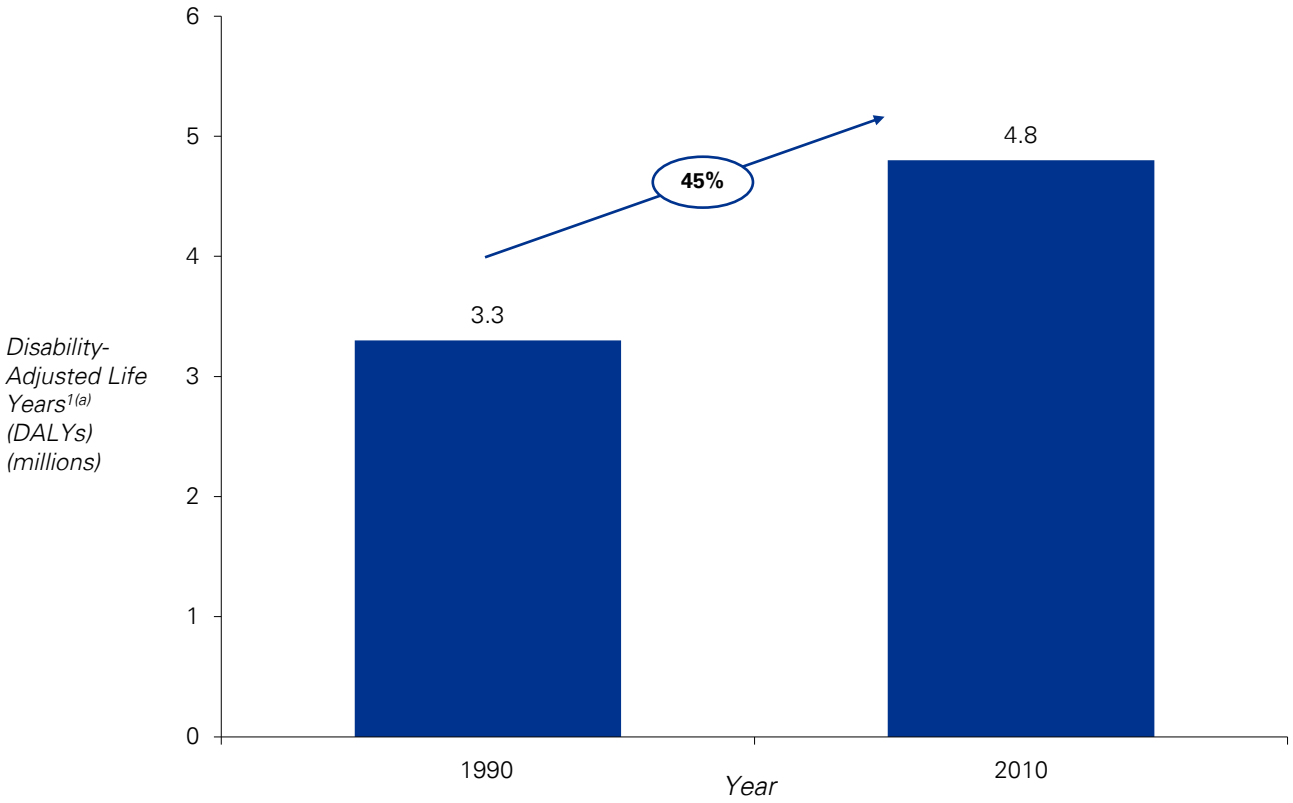
## Burden

- RA was ranked as the 42nd-highest contributor to global disability[b] and the leading cause of disability in the US[f]
- It is a chronic disabling condition often causing pain and deformity
- Within 10 years of onset, at least 50% of patients in developed countries are unable to hold down a full-time job[g]

**References**: (a) Aletaha D, et al. 2010 Rheumatoid Arthritis classification criteria: an American College of Rheumatology/European League Against Rheumatism Collaborative Initiative. American College of Rheumatology. 2010;62(9):2569–2581; (b) Silman A, et al. Epidemiology and genetics of rheumatoid arthritis. *Arthritis Res.* 2002;4:S265-272; (c) Arthritis Society. What is rheumatoid arthritis? [online] Accessed: 15 Jan 2020; (d) World Health Organization. 2018. WHO | Chronic rheumatic conditions; (e) Healthline. Rheumatoid Arthritis by the Numbers: Facts, Statistics, and You [online] Accessed: 14 Jan 2020; (f) Healthline, Rheumatoid Arthritis comes wuth a heavy cost to patients and the economy. [online] Accessed: 14 Jan 2020; (g) Cross M, et al. The global burden of rheumatoid arthritis: estimates from the global burden of disease 2010 study. *Ann Rheum Dis.* 2014;73(7):1316-22

# People are living for longer with RA, resulting in a growing global burden

## The global burden of RA on patients, caregivers and healthcare systems has risen, despite no significant change in prevalence




**Notes**: (1) Years of life lived with disability (YLDs). added to the years of life lost due to premature mortality to estimate the overall burden (disability-adjusted life years (DALYs.)[a]

**References**: (a) Cross M, et al. 2013. The global burden of rheumatoid arthritis: estimates from the global burden of disease 2010 study



## Drivers behind growth in global RA burden include:

- Growing prevalence of comorbidities such as cardiovascular disease and diabetes
- Ageing population and changing lifestyle
- Longer exposure to risk factors due to prolonged patient life through advancements in treatment options
- Economic and personal impact of treatment with existing therapeutic options

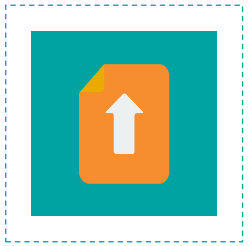
# RA has a significant economic impact, putting pressure on families, providers and society across North America

## Burden of RA across North America

1.3 million individuals have been diagnosed with RA in North America[a], generating an overall annual cost of over $19.3 billion[b]

The annual excess health care costs of RA patients in the US are $8.4 billion and the costs of other RA consequences are $10.9 billion. Of these costs, 28% of this is borne by patients and 19% is borne by the care givers[b]

It is estimated in the US that RA causes a quality-of-life deterioration of $10.9 billion and a premature mortality cost of $9.6 billion[b]

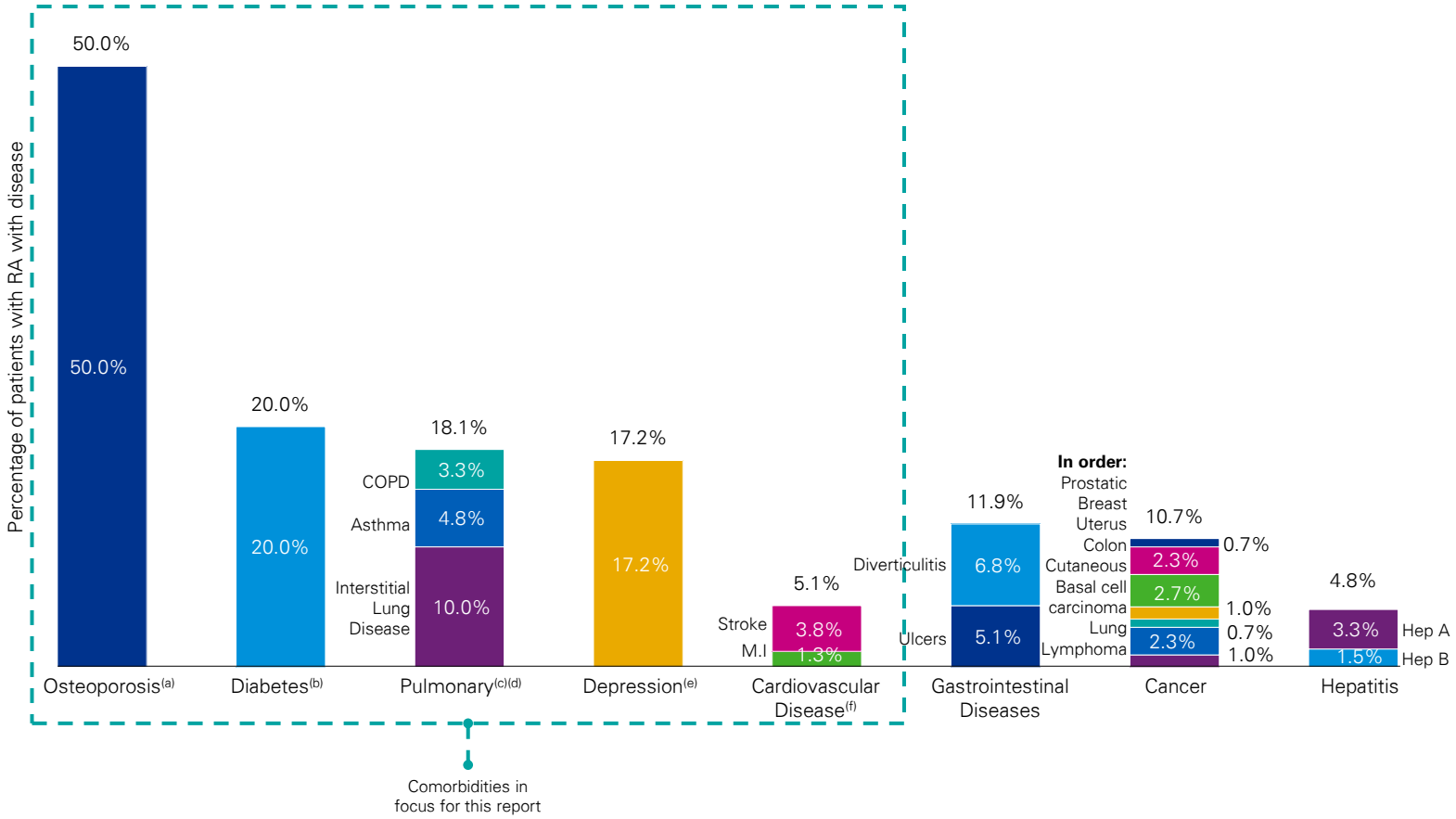


Comorbidities associated with RA further add to the economic burden of the condition. Even when compared to other forms of arthritis, such as osteoarthritis, indirect comorbidity costs for RA in North America can be up to 5 times higher[c]

**References**: (a) Healthline. Rheumatoid Arthritis by the Numbers: Facts, Statistics, and You [online] Accessed: 14 Jan 2020; (b) Bimbaum H, et al. Societal cost of rheumatoid arthritis patients in the US. *Curr Med Res Opin.* 2010;26(1):77-90; (c) Maetzel A, et al. The economic burden associated with osteoarthritis, rheumatoid arthritis and hypertension: a comparative study. *Ann Rheum Dis.* 2004;63(4):395-401

# Patients with RA are at higher risk of a number of comorbidities and complications

## The prevalence of comorbidities in patients with RA[1]




**Notes:**

1. Chart has been adapted from prevalence data taken predominantly from 2017 COMORA study. The study was not exhaustive, with the following comorbidities missing from this dataset:

- Osteoporosis (There is a 2x increase in osteoporosis among patients with RA compared with the general population.[b] 44% of patients with RA in the COMORA study were on Vitamin D treatment and therefore had been optimally screened[a]
- Periodontitis (68% of patients in a small sample size)[d]
- Uveitis
- Infection and infectious diseases (e.g., influenza, tuberculosis etc.). Indeed, patients with RA have elevated susceptibility to serious infections due to features of the disease itself, comorbidity and immunosuppressive treatment[e]

**Additional information regarding each of the comorbidities can be found through the following sources:**


(a) Lewiecki E, et al. Healthcare Policy Changes in Osteoporosis can Improve Outcomes and Reduce Costs in the United States. *ASMBR.* 2019;3(9) (b) Solomon DH, et al. Risk of diabetes among patients with rheumatoid arthritis, psoriatic arthritis and psoriasis. *Ann Rheum Dis.* 2010;69(12):2114–2117; (c) Raimundo K, et al. Rheumatoid Arthritis-Interstitial Lung Disease in the United States: Prevalence, Incidence, and Healthcare Costs and Mortality. *J Rheumatol.* 2019;46(4):360-369; (d) Sheen Y, et al. Association of asthma with rheumatoid arthritis: A population-based case-control study. *J Allergy Clin Immunolo Pract. 2019;6(1):219–226*; (e) Deb A, et al. Burden of Depression among Working-Age Adults with Rheumatoid Arthritis. *Hindawi.* 2018; (f) Crowson C, et al. Rheumatoid arthritis and cardiovascular disease. *Am Heart J.* 2013;166(4):622–628

# Treat-to-target is the leading strategy for managing RA, as endorsed by a joint ACR and EULAR taskforce

## The prioritization of treat-to-target was developed to achieve four overarching goals[(a)(b)(c)]

| Goals | Description | Example KPIs |
|---|---|---|
| **Shared decision making** | Between patient and rheumatologist | *% of patients who received education about self-management within one month of diagnosis* |
| **Maximize quality of life (QoL)** | Through:<br>— Control of symptoms<br>— Prevention of structural damage<br>— Normalization of function<br>— Participation in social and work-related activities | *Pain Visual Analogue Scale* |
| **Reduce inflammation** | To achieve the above goals | *% of patients in remission (DAS28 < 2.6)* |
| **Treat to optimize outcomes** | — By measuring disease activity<br>— Adjusting therapy accordingly to optimize outcomes in RA | *% patients who maintain remission over a year* |

**References**: (a) Smolen JS, et al. Treating rheumatoid arthritis to target: 2014 update of the recommendations of an international task force. *Ann Rheum Dis.* 2016;75:3-15; (b) Lie E, et al. Validation of OMERACT preliminary rheumatoid arthritis flare domains in the NOR-DMARD study. *Ann Rheum Dis.* 2014;73(10):1781-7

# The Canadian Rheumatology Association (CRA) has also developed overarching principles to guide physicians

## The CRA has developed five Overarching Principles in the Care of Persons with RA[a]:

1. Patients with RA should be cared for by a rheumatologist or by other healthcare professionals trained and experienced in RA diagnosis, clinical assessment, and appropriate prescription of RA drug therapies

2. Every Canadian with RA should have timely and equal access to appropriate rheumatologic care

3. Treatment of patients with RA should be based on shared decision-making between patient and physician. This should include provision of appropriate RA education materials to patients and caregivers, and a clear discussion of the benefits and potential risks of treatment

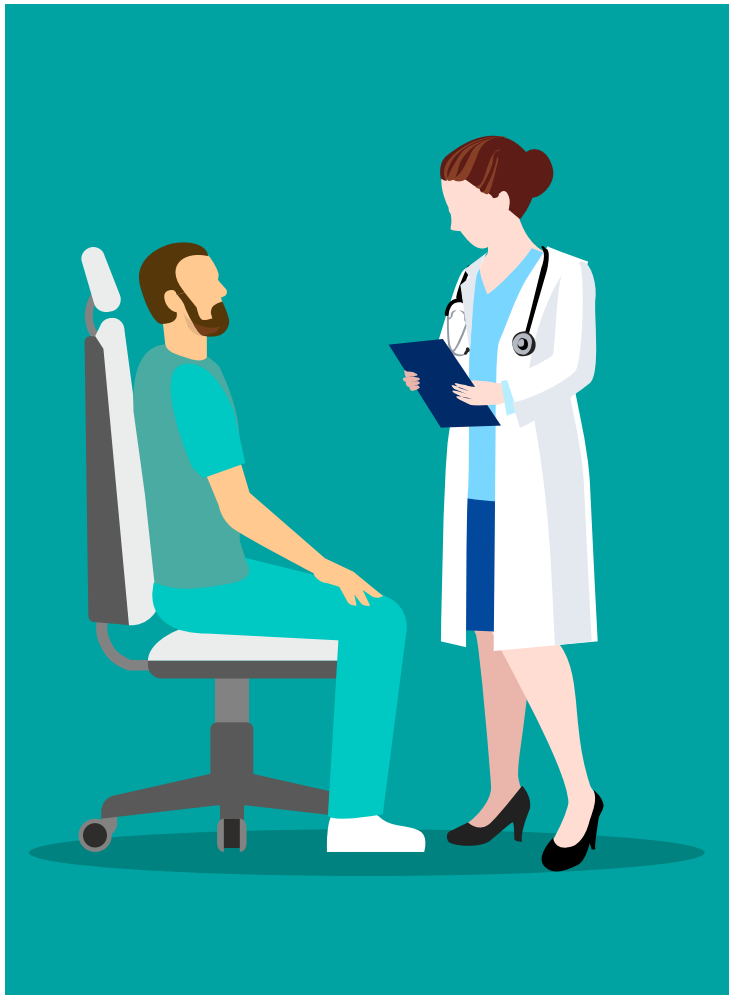
4. The development of shared-care models with PCPs and/or other allied health professionals trained in musculoskeletal conditions could enhance healthcare delivery for patients with RA, particularly given the current shortage of rheumatologists in Canada

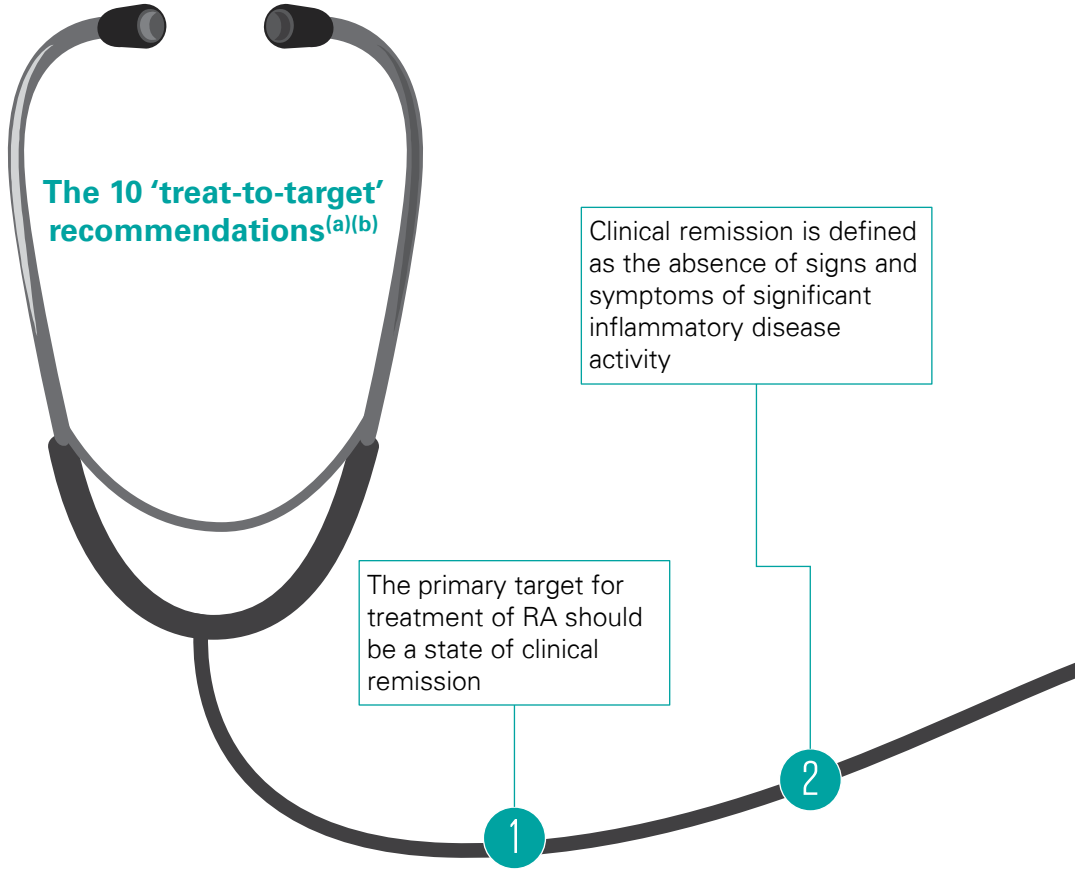
5. RA healthcare providers should consider opportunities for engaging patients in research both as participants and as potential research partners/consumer representatives in order to further the knowledge and understanding of RA

**Notes**: (1) Defined as 'not reaching target by 3-4 months' according to the CRA

**References**: (a) Bykerk V, et al. Canadian Rheumatology Association Recommendations for Pharmacological Management of Rheumatoid Arthritis with Traditional and Biologic Disease-modifying Antirheumatic Drugs. *The Journal of Rheumatology*. 2012;39(8):1559-1582

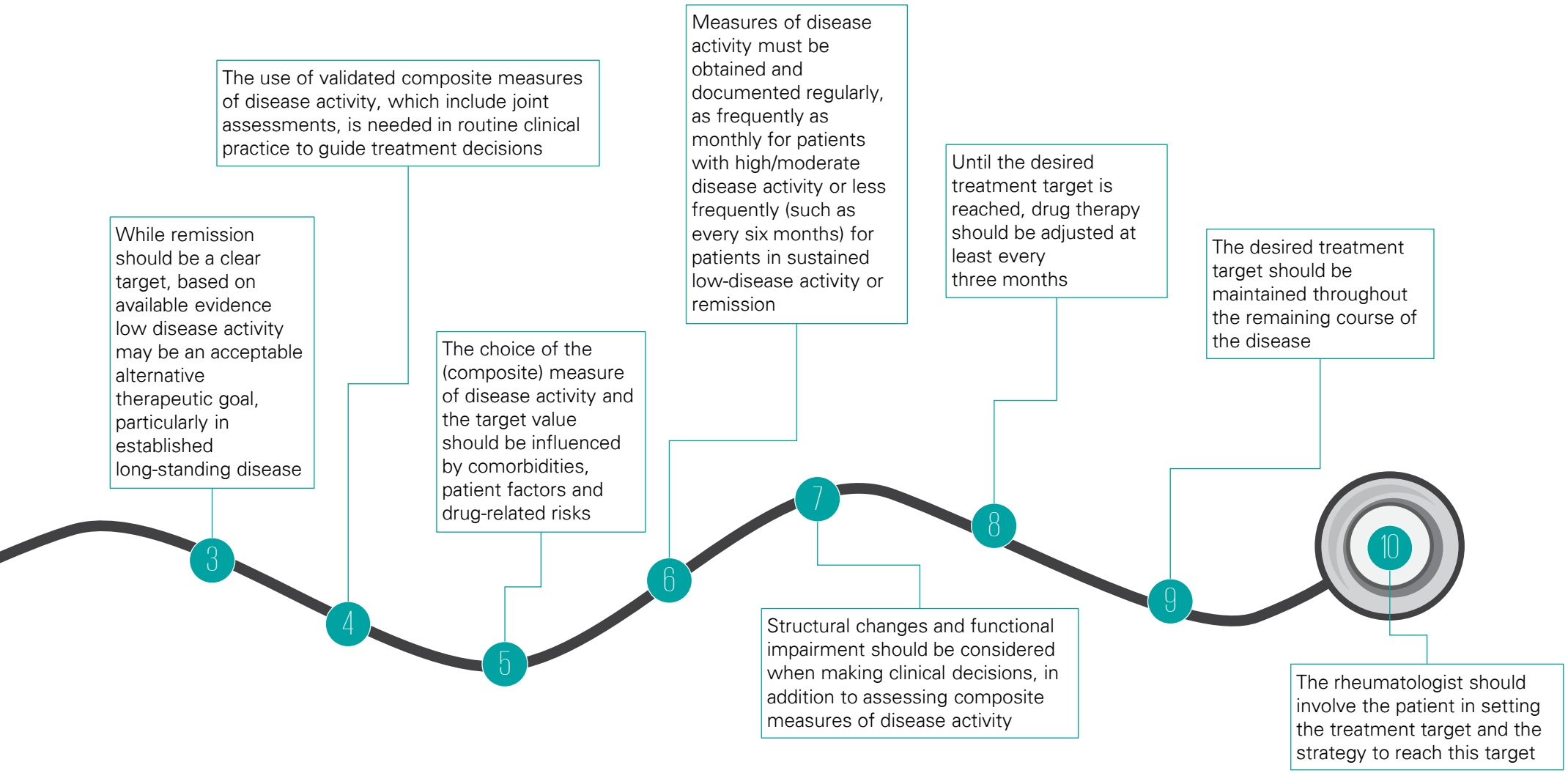
# Treat to-target encompasses 10 key recommendations...

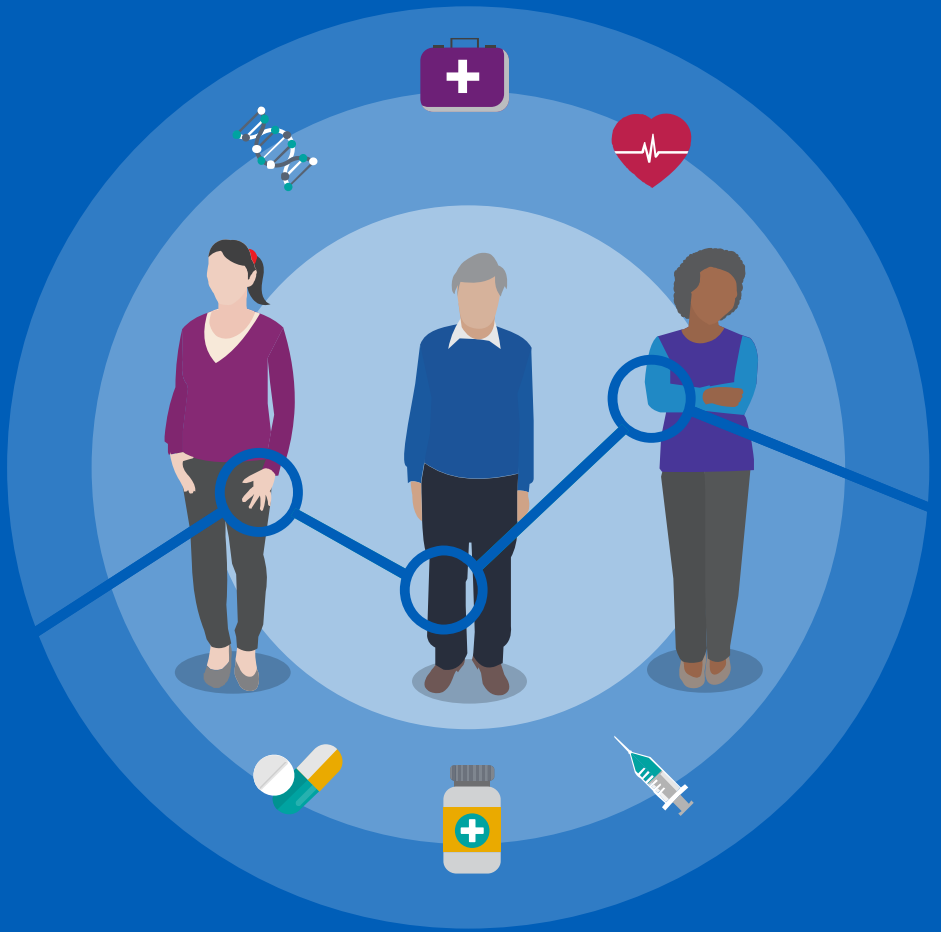





**References**: (a) Smolen J, et al. 2010. Treating rheumatoid arthritis to target: recommendations of an international task force. *Ann Rheum Dis*. 2010;69(4):631-7 (b) Smolen JS, et al. Treating rheumatoid arthritis to target: 2014 update of the recommendations of an international task force. *Ann Rheum Dis*. 2016;75:3-15

# ...to enable physicians and patients to meet the overarching goals

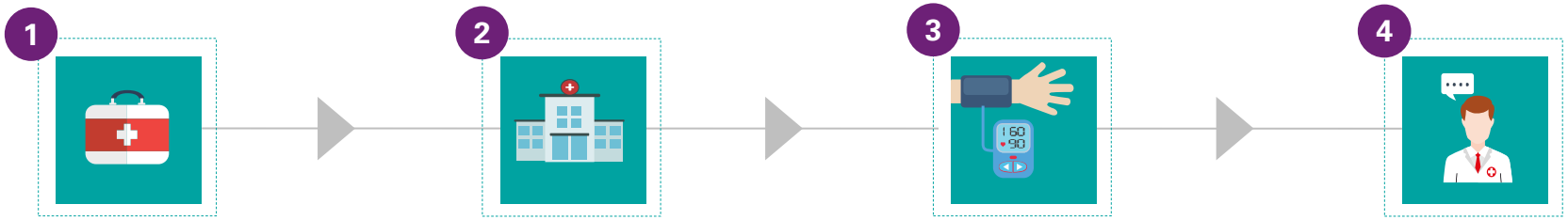




# Methodology

# A robust methodology was followed to document and identify the good practice interventions

## Key steps to arrive at report findings




| | Conduct literature review | Visit centers | Synthesize findings | Review from experts |
|---|---|---|---|---|
| **Why?** | To review key published evidence to understand the challenges and good practices in the care and management of RA and associated comorbidities | To observe and document the challenges in care and examples of good practice in prominent centers across Northern America | To collate findings from the literature review and observational center visits | To ensure the findings capture: the key challenges and gaps in the care of RA and associated comorbidities; and the most relevant good practices to HCPs and patients in the center-specific and regional reports |
| **How?** | Reviewed articles from peer-reviewed journals, as well as internationally-recognized guidelines and recommendations (ACR), for evidence-based practice of care and management | Visited nine RA centers across the region and conducted over 100 interviews with a wide range of stakeholders. Semi-structured interviews were combined with open questions to gain a complete understanding of good practice interventions in place | Synthesized findings from interviews, developing center-specific reports (available in appendix) and identified key themes and common interventions of good practice seen across the nine centers visited | Sought contribution and feedback from each participating center by submitting individual center-specific reports and regional report for review[(a)] |

**Note**: (1) Refer to 'Additional Notes on Methodology: Contributor roles and responsibilities' on page 69 for information on the roles and responsibilities of contributors
(2) Refer to 'Additional Notes on Methodology: Project Limitations' on page 71 for mitigation strategies on methodology limitations

# A literature review was initially conducted

Over 50 academic and clinical publications were reviewed in addition to high-quality grey literature from a number of reputable sources

The major international recommendations and guidelines for all indications in the scope of this report, including ACR and local recommendations/guidelines, were reviewed

Numerous publications by government and private institutions detailing healthcare good practices and future plans were consulted

**The literature review formed a basis for the findings from our fieldwork to build upon. Together this has helped form a comprehensive view of the RA care and management landscape and offer tangible examples of how the quality of care in RA and its associated comorbidities can be improved**

Contents
Methodology

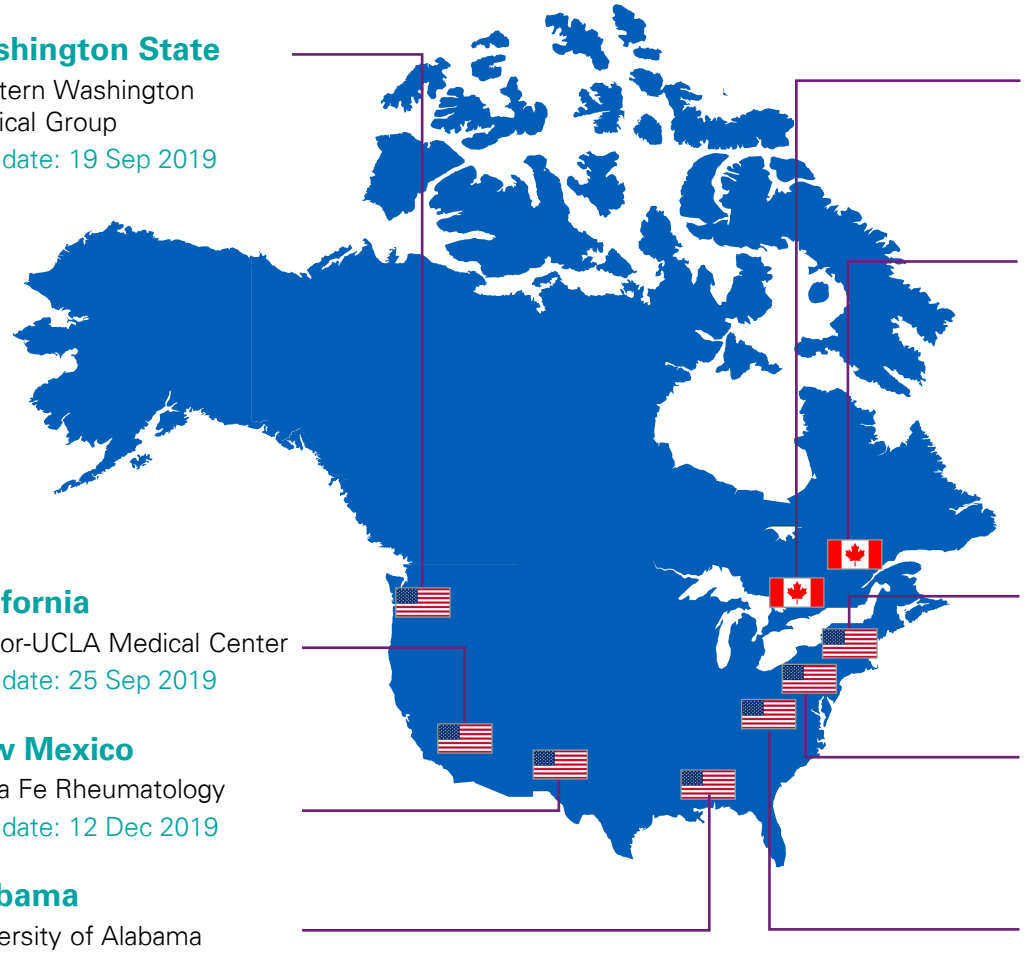
# Nine centers across the United States and Canada were visited

KPMG guided the selection of nine centers to take part in the initiative[1]. These were identified to represent a variety of public and private, large and small, urban and rural, and academic and non-academic healthcare providers

Centers had a track record of innovation (e.g., involvement in clinical trials and novel programs) and improving patient care for RA

Centers were representative of the majority of regional healthcare systems throughout the region, as well as being seen to operate models which were representative of the care continuum

**For further information, please see slides 70 and 71 for Center selection and Limitations to our methodology**



**Washington State**
Western Washington Medical Group
Visit date: 19 Sep 2019

**California**
Harbor-UCLA Medical Center
Visit date: 25 Sep 2019

**New Mexico**
Santa Fe Rheumatology
Visit date: 12 Dec 2019

**Alabama**
University of Alabama at Birmingham Hospital
Visit date: 11 Feb 2020

**Ontario**
Southlake Regional Health Centre
Visit date: 10 Dec 2019

**Quebec**
Rheumatology Institute of Montreal
Visit date: 13 Nov 2019

**Pennsylvania**
Geisinger
Visit date: 26 Aug 2019

**New York**
Hospital for Special Surgery
Visit date: 9-11 Sep 2019

**New York**
Grace C Wright MD PC
Visit date: 4 Mar 2020

**Note**: (1) Please refer to 'Additional Notes on Methodology: Center Selection' on page 70 for the detailed selection criteria

# During the center visits, a number of interviews were conducted

## Who did we speak to?

### The key stakeholders involved in RA and comorbidity care:

RA
- Rheumatologist
- Rheumatology nurse
- Rheumatology research nurse
- Community rheumatologist
- Nurse practitioner

Multidisciplinary team
- Pharmacist
- Service coordinator
- Physiotherapist
- Comorbidity coordinator
- Occupational therapist
- Podiatrist

Comorbidity
- Psychologist
- Diabetologist
- Cardiologist
- Pulmonologist
- Primary Care Physician

## What did we ask them?

### Interview questions covered the following areas of the patient pathway in order to identify gaps in care(1)

- Screening
- Diagnosis
- Linkage to care/referral
- Clinical management
- Multi-disciplinary care
- Use of technology
- Follow-up care
- Patient education/ empowerment
- Communication
- Training of HCPs

## What were the key themes?

- **Overview of center** (No. of patients, services, demographics, team)
- **Challenges** in RA and comorbidity care
- **Interventions** (Successful/unsuccessful attempts to overcome challenges)
- **Implementation** (Requirements and practical steps to replicate, inc. who/what/how/when)
- **Measurement of benefits** (inc. outcomes and KPIs)

**Note:** (1) An interview guide with set questions were asked at each center visit. Specific, detailed orientated questions were asked based on the key stakeholder's response

# Findings were identified and validated with each center expert

## Synthesize findings

### Center-specific findings

— Through our visits to nine RA centers, we identified key practices that underpin provision of high-quality care

— At each center visited, we:

- Walked the 'patient journey' to understand the different steps in care and the patient experience
- Discussed the key challenges in RA and comorbidity care
- Identified specific good-practice 'interventions' that improve the quality of care, including the benefits and tips for implementation
- Noted how benefits of interventions were being measured

— Following each visit, we documented our findings in a center-specific report

### Good practice interventions

— Findings were synthesized in order to identify distinct good practice interventions that, whilst they may have been implemented in varying ways by different centers, at the core were trying to achieve the same objectives

— An additional literature review was conducted to support our observed good practice interventions with further evidence

## Review from experts

### Rheumatologists

Following the write up of the center specific reports, the findings were shared with the rheumatologists at each center in order for their reports to be reviewed. We then incorporated the feedback and suggestions received from each center, in order to further enhance the accuracy, applicability and relevance of the reports

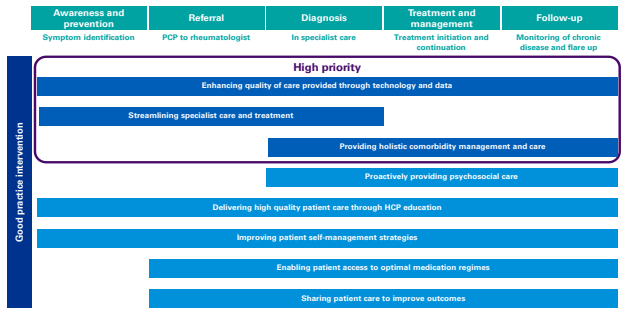
In addition to providing the information, the role of the rheumatologists therefore involved:

— Challenging and prioritizing our findings

— Guiding future dissemination and implementation of good practice

— Assuring the quality of the report outputs regarding their specific centers

Each intervention supports a number of points along the patient pathway

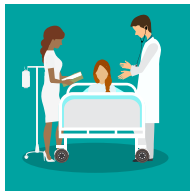
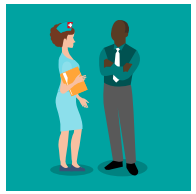


# Findings

## a) Challenges in RA care and associated comorbidities

# A number of challenges were identified across the patient pathway



| | **Awareness & Prevention**<br>Symptom identification | **Referral & Diagnosis**<br>In secondary care | **Treatment & Management**<br>Pharmacological management | **Treatment & Management**<br>Non-pharmacological management | **Follow-up**<br>Monitoring of chronic disease/flare up |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| **Gaps in care** | — Delay in patients seeking medical advice[a] | — Delay in referral from PCP to rheumatologist[a]<br>— Delay in diagnosis[a] | — Delay in treatment initiation[a]<br>— Limited patient adherence to therapy[c][d] | — Lack of coordinated treatment[e]<br>— Limited access to specialists for non-pharmaceutical treatment (e.g., occupational therapist)[b] | — Lack of monitoring[f]<br>— Suboptimal patient outcomes[g] |
| **Evidence** | — On average patients wait 3 months between the onset of their symptoms and their first consultation[a] | — Patients are delayed by 2 months on average between their first consultation and referral to a rheumatologist[a]<br>— Patients face a delay on average of 3 months between first consultation with a rheumatologist and patient diagnosis of the condition[a] | — Following diagnosis, patients on average wait 2 months before they start treatment for RA. Since first onset of symptoms, this process takes just under a year[a]<br>— Patient adherence to treatment varies widely from 30 – 80%[d] | — In a study from a rural and Northern Canadian province, only 53% and 26% of RA patients had reported being seen by a physiotherapist or an occupational therapist respectively[b] | — A British Colombian study of RA reported that only 48% and 34% of RA patients had seen a rheumatologist over the past 5 and 2 years respectively[f]<br>— Only 26% of patients were reported as satisfied with their RA treatment in a US study[g] |

**Notes**: These gaps were identified and verified through the literature review and site visits

**References**: (a) Barhamain A, et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms. *Open Access Rheumatol.* 2017;9:139-150; (b) Nair BV, et al. Self-reported barriers to healthcare access for rheumatoid arthritis [patients in rural and Northern Saskatchewan: A mixed methods study. *Musculoskeletal care.* 2016;14(4):243-251; (c) Marengo M, et al. Improving treatment adherence in patients with rheumatoid arthritis: what are the options? *Int J Clin Rheumtol.* 2015;10(5):345-356; (d) van den Bemt BJ, et al. Medication adherence in patients with rheumatoid arthritis: a critical appraisal of the existing literature. *Expert Rev Clin Immunolo.* 2012;8(4):337-51; (e) Marion CE, et al. Potential advantages of interprofessional care in rheumatoid arthritis. *J Manag Care Pharm.* 2011;17(9):25-9; (f) Lacaille D, et al. Gaps in case for Rheumatoid Arthritis: a population study. *Arthritis & Rheumatology* 2005;53(2):241-8; (g) Radawski C, et al. Patient perceptions of unmet medical need in rheumatoid arthritis: A cross-sectional survey in the USA. *Rheumatol Ther.* 2019;6(3):461-47

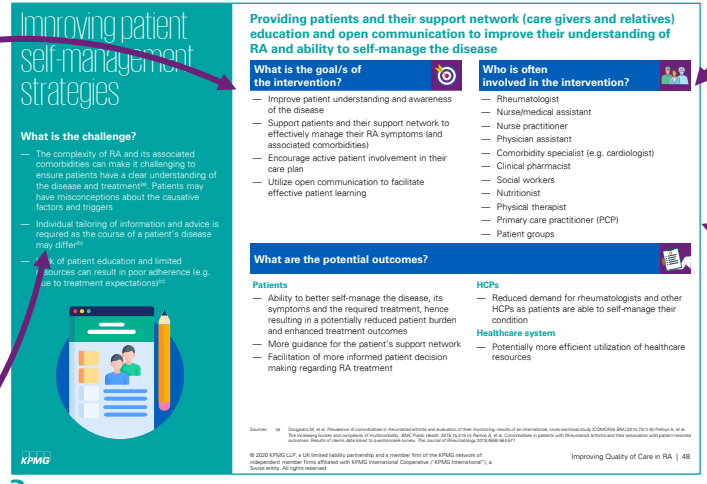
# Findings

## b) Good practice interventions for RA comorbidities

# Information on each intervention

## What is/are the goal(s) of the intervention?

- Explains what the intervention hopes to achieve
- Success in implementing each intervention could be measured by how effectively these goals are met




## What is the challenge?

- Describes how the intervention addresses current challenges identified across the patient journey

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

- Provides practical advice on what the intervention includes and examples of how the intervention has been implemented in the past in community or academic/hospital settings
  - If applicable, advice may be replicated across community and academic/hospital settings
- The answers to these two questions may be presented together or separately, based on what is more appropriate for each of the eight good practice interventions

## Relevant case studies

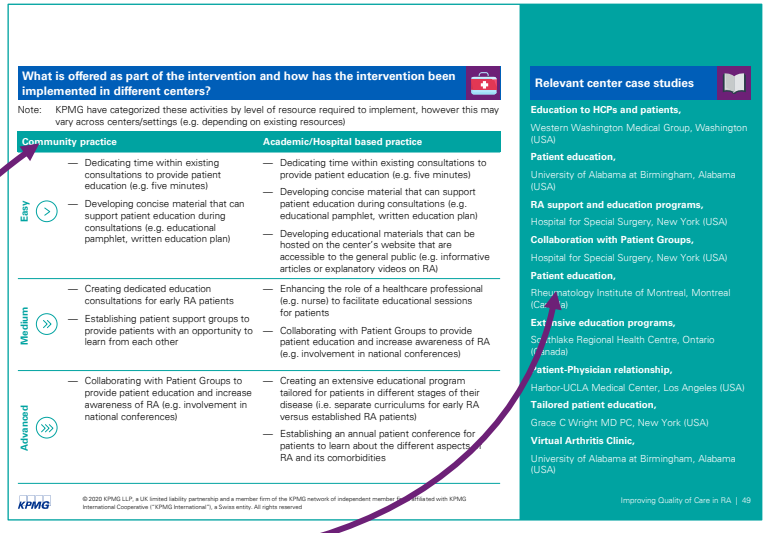
- Lists case studies from center reports that are relevant to the good practice intervention

## Who is often involved in the intervention?

- Details the medical professionals who are involved in the implementation of the intervention

## What are the potential outcomes?

- Provides an explanation of what positive benefits the intervention has the potential to provide for the following stakeholders: Patients, HCPs and the Healthcare System



# Across the centers visited, eight good practice interventions were identified and prioritized

**The interventions were prioritized based on anticipated impact and ease of implementation, according to the following definitions:**

### Impact

The anticipated positive impact on the rheumatology community, including the number of patients that would benefit from the intervention

### Ease of implementation

The degree of effort and resources (e.g., time and team members) required to implement the intervention

### Key consideration

The interventions have been categorized based on estimated number of patients impacted and the level of resources required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

## High priority

### Enhancing quality of care provided through technology and data

A coordinated, data-driven approach to monitoring and evaluating RA care quality through technology at the center or amongst the wider network

### Streamlining specialist care and treatment

Fast-tracked patient pathways and processes to support the assessment and diagnosis of RA patients (including Early Arthritis Clinics)

### Providing holistic comorbidity management and care

Active assessment and treatment of RA associated comorbidities to improve Quality of Life

### Proactively providing psychosocial care

Curation of processes and environment to support psychosocial management of RA patients

### Improving patient self-management strategies

Providing patients and their support network (care givers and relatives) education and open communication to improve their understanding of RA and ability to self-manage the disease

### Enabling patient access to optimal medication regimes

Minimizing funding barriers to medication and therapies for patients with limited financial resources

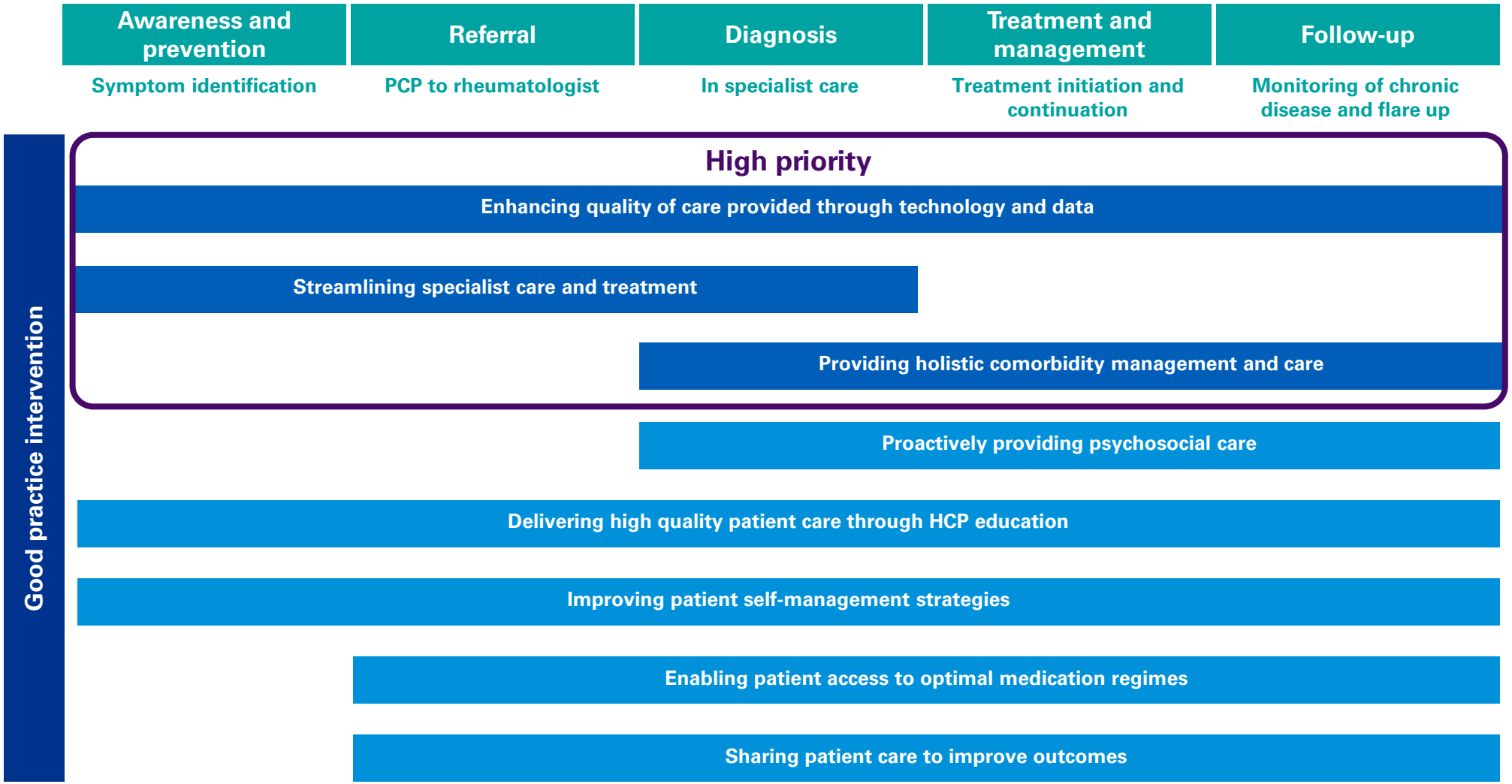
### Sharing patient care to improve outcomes

Managing the care of patients better through enabling and empowering healthcare professionals (e.g., nurses and pharmacists) to support physicians

### Delivering high quality patient care through HCP education

Enabling HCP education to improve the diagnosis or care of RA patients

# Each intervention supports a number of points along the patient pathway



# Enhancing quality of care provided through technology and data

## What is the challenge?

— The efficient gathering and analysis of patient-generated data is fundamental to supporting positive patient outcomes in the treatment and management of RA

— The utilization of technology presents a vital opportunity in the collection and analysis of data to support patient treatment[a]

— For example, the ability to provide early diagnosis of RA is considered a key improvement index for the most desirable outcomes of RA (e.g., reduced joint destruction and greater likelihood of remission). Achieving this capability however relies heavily on data capture[b]

KPMG

## A coordinated, data-driven approach to monitoring and evaluating RA care quality through technology at the center or amongst the wider network

### What is the goal/s of the intervention?

— Holistic and robust capture of all data that may be required to support the diagnosis of RA, as well as the associated referral, treatment and on-going management

— Utilize data and technology to support center research studies, in order to provide more applicable and relevant research outcomes

— Reduce the time, administration and finance burden on patients and HCPs by incorporating technology into the patient pathway

### Who is often involved in the intervention?

— Rheumatologist

— Nurse/medical assistant

— Nurse practitioner

— Physician assistant

— Comorbidity specialist (e.g., cardiologist)

— Primary care practitioner (PCP)

— Research coordinator

### What are the potential outcomes?

#### Patients

— Access to educational materials to support self-management of condition

— Ability to use technology to access physician care

— Potential for faster RA diagnosis, thereby leading to quicker referral to specialists

#### HCPs

— Ability to use technology to manage patients more efficiently

— Access to increased number of patients to utilize in clinical studies through deploying technology to identify patient pool

— Real-time data access to help support provision of care

#### Healthcare system

— Streamlined diagnosis and referrals process, leading to a more appropriate utilization of HCP and PCP resources

**References**: (a) Dixon W, et al. Using technology to support clinical care and research in rheumatoid arthritis. *Curr Opin Rheumatol.* 2018;30(3):276-281. doi: 10.1097/BOR.0000000000000485; (b) Guo Q, et al. Rheumatoid arthritis: pathological mechanisms and modern pharmacologic therapies. *Bone Res.* 2018,7:5. doi: 10.1038/s41413-018-0016-9

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

Note: KPMG have categorized these activities by level of resource required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

| | Community practice | Academic/Hospital based practice |
|---|---|---|
| Easy | — Capturing PROs through manual logging (e.g., via written forms and excel)<br>— Offering nurse consultations with patients over the phone | — Offering nurse consultations with patients over the phone<br>— Utilizing PROs through mediums such as online patient portals |
| Medium | — Partaking in multiple-center programs to develop RA metrics and collaboratively pursue research objectives | — Partaking in multiple-center programs to develop RA metrics, e.g., risk calculators<br>— Conducting studies in-center to develop knowledge of RA treatments<br>— Provision of patient educational materials through a patient portal |
| Advanced | — Establishing an online patient portal with features designed to capture PRO data and provide patient educational materials<br>— Creating software applications that support physicians in managing patients | — Creating software applications that enable physicians to clinically manage patients, for example, by tracking the effectiveness of treatment<br>— Developing a communication tool that allows PCPs to communicate electronically with HCPs<br>— Establishing a remote practice to provide regional patients with digital-based consultations. |

## Relevant center case studies

**Use of software to facilitate clinical care,**
Western Washington Medical Group, Washington (USA)

**Focus on Patient Reported Outcomes (PROs),**
Harbor-UCLA Medical Center, Los Angeles (USA)

**ATACC-RA Program,**
Harbor-UCLA Medical Center, Los Angeles (USA)

**Remote rheumatologist consultation,**
Southlake Regional Health Centre, Ontario (Canada)

**Population management,**
Santa Fe Rheumatology, New Mexico (USA)

**Ask-A-Doc,**
Geisinger, Pennsylvania (USA)

**Early arthritis diagnosis and treatment (CATCH),**
Rheumatology Institute of Montreal, Montreal (Canada)/Southlake Regional Health Centre, Ontario (Canada)

**Using READY to drive clinical decision making,**
University of Alabama at Birmingham, Alabama (USA)

**Rhumadata tool,**
Rheumatology Institute of Montreal, Montreal (Canada)

**PACER,**
Geisinger, Pennsylvania (USA)

**Development and use of ArthritisPower,**
University of Alabama at Birmingham, Alabama (USA)

# Streamlining specialist care and treatment

## What is the challenge?

— Inflammation is a major factor driving the progression of structural damage (e.g., joint erosion) in RA. It is critical to achieve rapid suppression of inflammation to maximize disease control[(a)]

— There are a variety of measures that can aid HCPs in providing a faster diagnosis. For instance, a rapid response team can help diagnose a patient's health status and provide prompt treatment before a medical emergency develops[(b)]

KPMG

## Fast-tracked patient pathways and processes to support the assessment and diagnosis of RA patients (including Early Arthritis Clinics)

### What is the goal of the intervention?

— Better opportunity to manage RA and support remission, thereby minimizing negative impact on patient quality of life

— Reduced burden on HCPs and the healthcare system by targeting the condition before it becomes too difficult to manage

— Sped up process between when a patient becomes aware that they have RA to when the patient is diagnosed and given treatment

— Increased patient compliance to treatment through prompt management of the condition

### Who is often involved in the intervention?

— Rheumatologist

— Nurse/medical assistant

— Nurse practitioner

— Comorbidity specialists

— Primary care practitioner (PCP)

### What are the potential outcomes?

#### Patients

— Potential for earlier provision of diagnosis and treatment in order to help delay disease progression, reduce impact of RA on daily activities, and increase likelihood of remission

— Facilitation of increased patient compliance to treatment through more proactive HCP response to condition and fewer delays.

#### HCPs

— Management of patient burden on HCPs through targeting the disease early.

#### Healthcare system

— Potentially more efficient utilization of healthcare resources

**References**: (a) Emery P, et al. Clinical identification and treatment of a rapidly progressing disease state in patients with rheumatoid arthritis. Rheumatology. 2008;47(4):392-398. doi:10.1093/rheumatology/kem257; (b) Hospital for Special Surgery. Patient Safety [pdf] https://www.hss.edu/files/patient-safety-guide.pdf Accessed 16 Sept 2019

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

Note: KPMG have categorized these activities by level of resource required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

| | Community practice | Academic/Hospital based practice |
|---|---|---|
| Easy | — Creating written patient questionnaires designed to capture patient information and inform diagnosis<br>— Developing educational materials to raise awareness of RA and promote screening for early diagnosis | — Providing written and online patient questionnaires to capture patient information and inform diagnosis<br>— Developing educational materials to raise awareness of RA and promote screening for early diagnosis<br>— Participating in cross-center RA studies that focus on tracking the course of the disease and the various treatment responses (e.g., CATCH) |
| Medium | — Participating in cross-center RA studies that focus on tracking the course of the disease and the various treatment responses (e.g., CATCH) | — Creating a team specially designed to provide fast assessment of patients, with access to specialists as required |
| Advanced | — Designing online patient questionnaires to help aid diagnosis | — Starting an initiative to educate the public regarding RA and encourage RA screening<br>— Conducting research on the development and progression of early arthritis<br>— Establishing a rapid-response team of multi-disciplinary physicians who can address the needs of RA patients in crisis |

## Relevant center case studies

**Access to external specialists,**

Grace C Wright MD PC, New York (USA)

**Early arthritis diagnosis and treatment (CATCH),**

Rheumatology Institute of Montreal, Montreal (Canada)/Southlake Regional Health Centre, Ontario (Canada)

**Patient questionnaire,**

Geisinger, Pennsylvania (USA)

**Efficient patient processing,**

Grace C Wright MD PC, New York (USA)

**Rapid response team,**

Hospital for Special Surgery, New York (USA)

**Early Arthritis Initiative,**

Hospital for Special Surgery, New York (USA)

**Case manager,**

Grace C Wright MD PC, New York (USA)

# Providing holistic comorbidity management and care

## What is the challenge?

— RA is associated with an increased prevalence of several comorbidities, such as cardiovascular disease, osteoporosis, obesity and depression[(a)]

— Many of these associated comorbidities can have a detrimental impact on a patient's physical and mental health[(b)], leading to a lower reported quality of life

— If the comorbidity is diagnosed early and promptly treated, however, its negative impact on patients can be significantly reduced[(c)].

KPMG

## Active assessment and treatment of RA associated comorbidities to improve Quality of Life

### What is the goal of the intervention?

— Early intervention and treatment with RA comorbidities to prevent further worsening of the condition

— Holistic management of all medical and non-medical aspects of RA and its associated comorbidities

— Increased HCP specialist knowledge of RA comorbidities, with a developed awareness of how to recognize a comorbidity and when to refer

### Who is often involved in the intervention?

— Rheumatologist

— Nurse/medical assistant

— Nurse practitioner

— Pharmacist

— Comorbidity specialists: pulmonologist, dermatologist, psychologist, psychiatrist, occupational therapist, physiotherapist, endocrinologist, ENT Specialist, nutritionist, dietician, cardiologist

— Orthopaedic/surgeon

— Primary care practitioner (PCP)

### What are the potential outcomes?

#### Patients

— Access to RA comorbidity specialists to provide holistic treatment for the condition

— Potential for a reduced referral and diagnosis time, as HCPs utilize shared decision making capabilities, and become more aware of when to refer and to which specialist

— Management of factors that would otherwise impact RA and reduce patient quality of life (e.g., weight-related side effects)

#### HCPs

— Specialized management of RA comorbidities through sharing knowledge and a collaborative care approach

— Mitigated influence of side effects that would otherwise require additional care (e.g., smoking-related illnesses)

#### Healthcare system

— Provision of holistic medical and non-medical care to aid all-round support for the patient

**References**: (a) Dougados M, et al. Prevalence of comorbidities in rheumatoid arthritis and revaluation of their monitoring results of an international cross-sectional study (COMORA) *Ann Rheum Dis*. 2014;73(1):62-8. doi: 10.1136/annrheumdis-2013-204223; (b) Geryk L, et al. The impact of co-morbidity on health-related quality of life in rheumatoid arthritis and osteoarthritis patients. *Clin Exp Rheumatol*. 2015;33(3):366-74; (c) Filipowicz-Sosnowska A. Comorbidities and multimorbidity in rheumatic diseases. *Rheumatologia*. 2019;57(1):1-2

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

Note: KPMG have categorized these activities by level of resource required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

| | Community practice | Academic/Hospital based practice |
|---|---|---|
| Easy | — Screening each patient for presence of comorbidities, such as using PROs or objective measures | — Screening each patient for presence of comorbidities, such as using PROs or objective measures<br>— Running in-center educational programs designed to help inform and guide patients regarding holistic management of their condition |
| Medium | — Running in-center educational programs designed to help inform and guide patients regarding holistic management of their condition<br>— Participation in cross-center programs that focus on researching RA and developing tools to manage its associated comorbidities | — Organizing a team of physicians who work on behalf of patients with other specialists, managing an aspect of their treatment (e.g., surgery)<br>— Establishing a local referral network of specialists<br>— Creating a rapid response care team using critical care nurses who can provide an immediate assessment of a patient's condition and alert HCPs if there is a medical crisis |
| Advanced | — Establishing a local referral network of specialists who can help treat and manage RA and its associated comorbidities (e.g., cardiologist, endocrinologist) | — Running clinics/units designed to help inform and guide patients<br>— Establishing an in-center care team of specialists (e.g., cardiologist, endocrinologist)<br>— Starting an in-center program to research and develop tools for RA management |

## Relevant center case studies

**Efficient patient processing,**

Grace C Wright MD PC, New York (USA)

**Rapid response team,**

Hospital for Special Surgery, New York (USA)

**Access to external specialists,**

Grace C Wright MD PC, New York (USA)

**Comorbidity management,**

University of Alabama at Birmingham, Alabama (USA)

**ATACC-RA,**

Harbor-UCLA Medical Center, Los Angeles (USA)

**Collaboration with other specialists,**

Santa Fe Rheumatology, New Mexico (USA)

**Virtual Arthritis Clinic,**

University of Alabama at Birmingham, Alabama (USA)

**Case manager,**

Grace C Wright MD PC, New York (USA)

# Proactively providing psychosocial care

## What is the challenge?

- RA is heavily associated with negative changes in mental health, such as the development of depression.[a] This is often due to the adverse impact RA can have on patient quality of life and day-to-day activities[b]
- The development of mental health issues can have a further detrimental impact on patient adherence to medication and lead to sub-optimal disease outcomes[a][b]
- Psychological support, especially when administered early, can be efficacious for RA patients in managing their pain and improving patient outcomes[c]

KPMG

## Curation of processes and environment to support psychosocial management of RA patients

### What is the goal of the intervention?

- Provide psychosocial support for RA patients in order to mitigate any adverse affects on patient mental health
- Build stronger relationships between patients and physicians to cultivate communication channels and enhance quality of care delivered
- Offer guidance regarding daily activities to further manage and improve patient overall quality of life

### Who is often involved in the intervention?

- Rheumatologist
- Nurse/medical assistant
- Nurse practitioner
- Primary care practitioner (PCP)
- Psychologist/mental health professional
- Nutritionist
- Pharmacist
- Social worker
- Physical and occupational therapists
- Orthopaedic surgeon
- Podiatrist.

### What are the potential outcomes?

#### Patients

- Management of the psychosocial aspects of RA (e.g., depression, impact on employment)
- Ability to reduce the impact of RA on day-to-day activities (e.g., weight management, smoking)

#### HCPs

- Facilitation of communication between patients and HCPs, resulting in potentially better quality feedback to improve quality of care for future patients

#### Healthcare system

- Provision of mental health treatment in the healthcare system

**References:** (a) Euesden J, et al. The relationship between mental health, disease severity, and genetic risk for depression in early Rheumatoid Arthritis. *Psychosoc Med.* 2017;79(6):638-645. doi: 10.1097/PSY.0000000000000462; (b) Vallerand I, et al. Depression and the risk of rheumatoid arthritis. *Curr Opin. In Rheu* 2019;31(3):279-284. doi: 10.1097/BOR.0000000000000597; (c) Sharpe L. Psychological management of chronic pain in patients with rheumatoid arthritis: challenges and solutions. *J Pain Res.* 2016;9:137-146. doi: 10.2147/JPR.S83653

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

Note: KPMG have categorized these activities by level of resource required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

| | Community practice | Academic/Hospital based practice |
|---|---|---|
| Easy | — Providing general guidance during patient consultations (e.g., occupational therapy)<br>— Developing written educational materials to help inform and guide patients regarding managing daily life | — Providing general guidance during patient consultations (e.g., occupational therapy)<br>— Developing written educational materials to help inform and guide patients regarding managing daily life |
| Medium | — Establishing a local referral network of specialists who can help treat and manage RA and its psychosocial impact on patients | — Offering PROs to patients in a multitude of languages and utilizing interpreters accessible to the center in order to support patient communication<br>— Developing programs to provide psychosocial support to patients<br>— Establishing a local referral network of specialists who can help treat and manage RA and its psychosocial impact on patients |
| Advanced | — Running in-center programs to help inform and guide patients<br>— Holding internal clinics to advise patients and provide psychosocial support | — Establishing an in-center care team of specialists who can help manage RA and its psychosocial impact on patients<br>— Running internal clinics to help inform and guide patients |

## Relevant center case studies

**Holistic management of patients,**

Western Washington Medical Group, Washington (USA)

**Care Team,**

Hospital for Special Surgery, New York (USA)

**Patient-Physician relationship,**

Harbor-UCLA Medical Center, Los Angeles (USA)

**Patient wellness,**

Santa Fe Rheumatology, New Mexico (USA)

# Delivering high quality patient care through HCP education

## What is the challenge?

— RA is a complex condition with many associated comorbidities[(a)]; however, this can make it very challenging to accurately diagnose

— Early diagnosis and provision of treatment for RA can result in multiple positive patient outcomes, such as reducing joint erosion and the threat of disability[(b)]

— Education targeted at HCPs can help ensure that patients are diagnosed promptly and managed effectively

KPMG

## Enabling HCP education to improve the diagnosis or care of RA patients

### What is the goal of the intervention?

— Enhanced ability of PCPs and HCPs to promptly diagnose and refer patients to the necessary specialist

— Sharing of knowledge between HCPs across the region/RA network, resulting in better treatment guidelines

— Increased patient access to rheumatologists, through increased provision of the necessary training

— Provision of care to RA patients in communities who otherwise may have been out of reach

### Who is often involved in the intervention?

— Rheumatologist

— Nurse/medical assistant

— Nurse practitioner

— Comorbidity specialists

— Primary care practitioner (PCP)

### What are the potential outcomes?

#### Patients

— Increased access to RA treatment guidance through increased number of trained HCPs and facilitation of shared knowledge

— Prompt delivery of a diagnosis and treatment program to manage the condition, due to a more streamlined and efficient referral process between PCP, HCP and comorbidity specialist

— Convenient provision of care to patients who would struggle to get to an RA clinic but can now be treated in the community

#### HCPs

— Access to wider RA knowledge to aid with patient referral and diagnosis

— Potential reduction in the amount of unnecessary referrals, due to HCPs/PCPs being more aware of when to refer and to who

#### Healthcare system

— Provision of HCP education to promote higher quality care for RA and its associated comorbidities

**References**: (a) Dougados M, et al. Prevalence of comorbidities in rheumatoid arthritis and revaluation of their monitoring results of an international cross-sectional study (COMORA) *Ann Rheum Dis.* 2014;73(1):62-8. doi: 10.1136/annrheumdis-2013-204223; (b) Heidari B, et al. Rheumatoid Arthritis: Early diagnosis and treatment outcome. *Caspian J Intern Med.* 2011;2(1):161-170

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

Note: KPMG have categorized these activities by level of resource required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

| | Community practice | Academic/Hospital based practice |
|---|---|---|
| Easy | — Organizing small-scale group educational sessions for general HCP education (e.g., workshops)<br>— Providing written educational materials for general HCP education | — Providing written educational materials aimed at HCPs, PCPs and comorbidity specialists<br>— Arranging medium-scale group educational sessions aimed at HCPs, PCPs and comorbidity specialists (e.g., lectures) |
| Medium | — Conducting small-scale group educational sessions targeted at HCPs, PCPs and comorbidity specialists (e.g., workshops)<br>— Providing educational materials targeted at HCPs, PCPs and comorbidity specialists | — Involvement in the education of medical students (e.g., provision of RA lectures)<br>— Host interactive educational webinars<br>— Providing educational materials aimed at HCPs, PCPs and comorbidity specialists through an online portal |
| Advanced | — Using an online portal to provide educational resources aimed at HCPs, PCPs and comorbidity specialists<br>— Host interactive educational webinars | — Developing a communication tool that allows PCPs to communicate directly and electronically with HCPs<br>— Employing an additional healthcare professional (e.g., trainee GP, a 'plus one' family doctor who undertakes one extra year of training in order to specialize in rheumatology)<br>— Hosting large-scale group educational sessions aimed at HCPs, PCPs and comorbidity specialists (e.g., conferences) |

## Relevant center case studies

**Education to HCPs and patients,**

Western Washington Medical Group, Washington (USA)

**Ask-a-Doc,**

Geisinger, Pennsylvania (USA)

# Improving patient self-management strategies

## What is the challenge?

— The complexity of RA and its associated comorbidities can make it challenging to ensure patients have a clear understanding of the disease and treatment[(a)]. Patients may have misconceptions about the causative factors and triggers

— Individual tailoring of information and advice is required as the course of a patient's disease may differ[(b)]

— Lack of patient education and limited resources can result in limited adherence to therapy (e.g., due to treatment expectations)[(c)]

KPMG

## Providing patients and their support network (care givers and relatives) education and open communication to improve their understanding of RA and ability to self-manage the disease

### What is the goal of the intervention?

— Improve patient understanding and awareness of the disease

— Support patients and their support network to effectively manage their RA symptoms (and associated comorbidities)

— Encourage active patient involvement in their care plan

— Utilize open communication to facilitate effective patient learning

### Who is often involved in the intervention?

— Rheumatologist

— Nurse/medical assistant

— Nurse practitioner

— Physician assistant

— Comorbidity specialist (e.g., cardiologist)

— Clinical pharmacist

— Social workers

— Nutritionist

— Physical therapist

— Primary care practitioner (PCP)

— Patient groups

### What are the potential outcomes?

#### Patients

— Ability to better self-manage the disease, its symptoms and the required treatment, hence resulting in a potentially reduced patient burden and enhanced treatment outcomes

— More guidance for the patient's support network

— Facilitation of more informed patient decision making regarding RA treatment

#### HCPs

— Reduced demand for rheumatologists and other HCPs as patients are able to self-manage their condition

#### Healthcare system

— Potentially more efficient utilization of healthcare resources

**References**: (a) Dougados M, et al. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA) *BMJ* 2014:73(1); (b) Pefoyo A, et al. The increasing burden and complexity of multimorbidity. *BMC Public Health*. 2015;15:415; (c) Ramos A, et al. Comorbidities in patients with Rheumatoid Arthritis and their association with patient-reoorted outcomes: Results of claims data linked to questionnaire survey. *The Journal of Rheumatology* 2019;46(6):564-571

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

Note: KPMG have categorized these activities by level of resource required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

| | Community practice | Academic/Hospital based practice |
|---|---|---|
| Easy | — Dedicating time within existing consultations to provide patient education (e.g., five minutes)<br>— Developing concise material that can support patient education during consultations (e.g., educational pamphlet, written education plan) | — Dedicating time within existing consultations to provide patient education (e.g., five minutes)<br>— Developing concise material that can support patient education during consultations (e.g., educational pamphlet, written education plan)<br>— Developing educational materials that can be hosted on the center's website that are accessible to the general public (e.g., informative articles or explanatory videos on RA) |
| Medium | — Creating dedicated education consultations for early RA patients<br>— Establishing patient support groups to provide patients with an opportunity to learn from each other | — Enhancing the role of a healthcare professional (e.g., nurse) to facilitate educational sessions for patients<br>— Collaborating with Patient Groups to provide patient education and increase awareness of RA (e.g., involvement in national conferences) |
| Advanced | — Collaborating with Patient Groups to provide patient education and increase awareness of RA (e.g., involvement in national conferences) | — Creating an extensive educational program tailored for patients in different stages of their disease (i.e. separate curriculums for early RA versus established RA patients)<br>— Establishing an annual patient conference for patients to learn about the different aspects of RA and its comorbidities |

## Relevant center case studies

**Education to HCPs and patients,**

Western Washington Medical Group, Washington (USA)

**Patient education,**

University of Alabama at Birmingham, Alabama (USA)

**RA support and education programs,**

Hospital for Special Surgery, New York (USA)

**Collaboration with Patient Groups,**

Hospital for Special Surgery, New York (USA)

**Patient education,**

Rheumatology Institute of Montreal, Montreal (Canada)

**Extensive education programs,**

Southlake Regional Health Centre, Ontario (Canada)

**Patient-Physician relationship,**

Harbor-UCLA Medical Center, Los Angeles (USA)

**Tailored patient education,**

Grace C Wright MD PC, New York (USA)

**Virtual Arthritis Clinic,**

University of Alabama at Birmingham, Alabama (USA)

# Enabling patient access to optimal medication regimes

## What is the challenge?

— Providing patients with access to optimal medication can be challenging due to financial barriers and variable insurance coverage between pharmacy benefit managers and insurers

— Each provider can carry a different criteria for medication access (including predeterminations and treatment restrictions), which can directly impact choice of prescription

— Patients may be at risk of sub-optimal outcomes as a result of inadequate treatment options[a]

KPMG

## Minimizing funding barriers to medication and therapies for patients with limited financial resources

### What is the goal of the intervention?

— To provide patients with access to the most appropriate treatment for their condition

— Reduce the risk of treatment non-compliance due to suboptimal medication options

— Avoid unnecessary deterioration in the patients' condition

### Who is often involved in the intervention?

— Rheumatologist

— Biologic coordinator

— Nurse/medical assistant

— Nurse practitioner

— Pharmacist

— Physician assistant

— Center manager

### What are the potential outcomes?

**Patients**

— Access to optimal RA treatments as a result of reduced financial barriers for treatment

— Increased patient engagement in treatment decisions through an emphasis on shared-decision making between physician and patient

**HCPs**

— Ability to provide prescription of optimal treatment identified

**Healthcare system**

— Potential reduction in cost burden associated with initiation of unnecessary or incorrect treatments

**References**: (a) Cifaldi M, et al. Disparities in care by insurance status for individuals with rheumatoid arthritis: analysis of the medical expenditure panel survey, 2006-2009. *Curr Med Res Opin.* 2016;32(12):2029–2037. doi:10.1080/03007995.2016.1227775

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

Note: KPMG have categorized these activities by level of resource required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

| | Community practice | Academic/Hospital based practice |
|---|---|---|
| Easy | — Providing patients with relevant medical insurance forms during initial consultation<br>— Contacting pharmaceutical companies to obtain patient pamphlets and material | — Providing patients with relevant medical insurance forms during initial consultation<br>— Completing pre-authorization forms for patients shortly before/after consultation<br>— Contacting pharmaceutical companies to obtain patient pamphlets and material<br>— Facilitating patient access to pharmaceutical support programs |
| Medium | — Facilitating patient access to pharmaceutical support programs | — Utilizing Exceptions and Appeals processes and provide Letter of Medical Necessity for patients who have been denied treatment<br>— Establishing a single point of contact for patients to navigate treatment concerns. For example: dedicating a treatment coordinator to support and manage access to treatment (e.g., biologic coordinator) |
| Advanced | — Establishing a single point of contact for patients to navigate treatment concerns. For example: dedicating a treatment coordinator to support and manage access to treatment (e.g., biologic coordinator) | — Raising funds (i.e. private funding) to support RA-related activities and interventions |

## Relevant center case studies

**All centers actively supported/coordinated patient access to appropriate medication**

# Sharing patient care to improve outcomes

## What is the challenge?

— Rheumatologists have limited time with RA patients on activities such as education and self-management. This poses a considerable barrier to reaching treatment targets[a]

— Sharing care of patients however can subvert this outcome, by allowing various Allied Healthcare Professionals (AHPs) to help provide care to patients

— For example, it has been shown that an increased and proactive role of the nurse in treating RA can lead to enhanced patient outcomes[b]

KPMG

## Managing the care of patients better through enabling and empowering healthcare professionals (e.g., nurses and pharmacists) to support physicians

### What is the goal of the intervention?

— Enhance patient outcomes by sharing care of patients amongst multiple HCPs, thereby providing patients with adequate time to discuss their condition

— Increase patient compliance to treatment by ensuring they receive sufficient education regarding their treatment

— Free up rheumatologist time, who can then focus more on RA patients in a critical condition

— Empower other HCPs in the patient pathway by granting them a greater role in the treatment and management of RA patients

### Who is often involved in the intervention?

— Rheumatologist

— Nurse/medical assistant

— Nurse practitioner

— Comorbidity specialists: pulmonologist, dermatologist, psychologist, psychiatrist, occupational therapist, physiotherapist, endocrinologist, ENT Specialist, nutritionist, dietician, cardiologist, ophthalmologist, respirologist, microbiologist

— Pharmacist

— Infectious disease specialist

— Primary care practitioner (PCP)

### What are the potential outcomes?

#### Patients

— Exposure to AHPs to receive increased amounts of patient education and treatment guidance

— AHP support to assist with managing the patient burden

— Focused provision of rheumatologist time towards patients with critical RA, who need more specialized help

#### HCPs

— Rheumatologist time is freed up

— AHPs are empowered through greater provision of responsibility and involvement in the patient treatment pathway

#### Healthcare system

— Larger number of resources made available to provide care to the patient, resulting in potentially enhanced patient outcomes

**References:** (a) Batko B, et al. Physician adherence to Treat-to-Target and practical guidelines in Rheumatoid Arthritis. *J Clin Med.* 2019;8(9):1416. doi: 10.3390/jcm8091416 (b) Vivienne L, et al. Nurses' role in the management of chronic inflammatory arthritis: a systematic review. *Rheumatol Int.* 2018;38(11):2027-2036. doi: 10.1007/s00296-018-4135-9

## What is offered as part of the intervention and how has the intervention been implemented in different centers?

Note: KPMG have categorized these activities by level of resource required to implement; however, this may vary across centers/settings (e.g., depending on existing resources)

| | Community practice | Academic/Hospital based practice |
|---|---|---|
| Easy | — Running group educational sessions led by an AHP (e.g., smoking programs) | — Collaborating with PCPs to proactively manage PA and its associated comorbidities<br>— Running group educational sessions and providing one-to-one patient educational sessions with an AHP<br>— Developing documents and tools to aid centers with diagnosing RA and its associated comorbidities<br>— Offering AHP consultations with patients over the phone |
| Medium | — Developing documents and tools to aid centers with diagnosing RA and its associated comorbidities<br>— Offering AHP consultations with patients over the phone | — Incorporating regular and structured AHP involvement into the patient pathway (e.g., treatment education with a pharmacist) |
| Advanced | — Incorporating regular and structured AHP involvement into the patient pathway (e.g., patient one-to-one consultation with a nurse)<br>— Developing an external network of comorbidity specialists to treat RA and its associated comorbidities | — Establishing a comorbidity specialist team in-center<br>— Employing an additional healthcare professional (e.g., trainee GP, a 'plus one' family doctor who undertakes one extra year of training in order to specialize in rheumatology)<br>— Creating a team specially designed to provide fast assessment of patients, with access to specialists as required |

## Relevant center case studies

**Nurse telephone visit,**

Geisinger, Pennsylvania (USA)

**Comorbidity management,**

Harbor-UCLA Medical Center, Los Angeles (USA)

**Virtual Arthritis Clinic,**

University of Alabama at Birmingham, Alabama (USA)

**Case manager,**

Grace C Wright MD, New York (USA)

**RA comorbidity management,**

Rheumatology Institute of Montreal, Montreal (Canada)

**Efficient patient processing,**

Grace C Wright MD PC, New York (USA)

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Contents

# Glossary and bibliography

# Glossary

ACA: Affordable Care Act
ACR: American College of Rheumatology
ADL: Activities of Daily Living
AF: Arthritis Foundation
AHP: Allied Health Professional
ANCA Vasculitis: Anti-Neutrophil Cytoplasmic Antibody-associated Vasculitis
APN: Advanced Nurse Practitioner
AS: Ankylosing Spondylitis
ASCVD: Atherosclerotic Cardiovascular Disease
ATACC-RA: A Transatlantic Cardiovascular Risk Calculator for Rheumatoid Arthritis
AWIT: Association of Women in Rheumatology
BASFI: Bath Ankylosing Spondylitis Functional Index
BASDAI: Bath Ankylosing Spondylitis Disease Activity Index
CAPA: Canadian Arthritis Patient Alliance
CAROC: Canadian Association of Radiologists and Osteoporosis Canada
CATCH: Canadian Early Arthritis Cohort Study
CDAI: Clinical Disease Activity Index
CMS: Centers for Medicare & Medicaid Services
CoE: Center of Excellence
COMORA: COMOrbidities in Rheumatoid Arthritis
COPD: Chronic Obstructive Pulmonary Disease
CRA: Canadian Rheumatology Association
CRP: C-Reactive Protein
CT: Computed Tomography
CVE: Cardiovascular Events
CVD: Cardiovascular Disease
DAA: Disease Activity Assessment
DALYs: Disease Adjusted Life Years
DAS: Disease Activity Score
DAS28: Disease Activity Score
DHS: Department of Health Services
DMARD: Disease-Modifying Anti-Rheumatic Drugs
DVT: Deep Vein Thrombosis
EAC: Early Arthritis Clinic
EAI: Early Arthritis Initiative
ECG: Electrocardiogram
EGA: Evaluator's Global disease Activity
EHR: Electronic Health Records
EMR: Electronic Medical Records
ENT: Ear, Nose, Throat
ER: Emergency Room
ESR: Erythrocyte Sedimentation Rate
ETP: Education Program for Patients
EULAR: European League Against Rheumatism
FACIT: Functional Assessment of Chronic Illness Therapy
FM: Fibromyalgia
FRAX: Fracture Risk Assessment Tool
FTE: Full Time Equivalent
GAD-7: General Anxiety Disorder-7
GCA: Giant Cell Arthritis
GI: Gastrointestinal
HAQ: Health Assessment Questionnaire
HAQ-DI: Health Assessment Questionnaire with Disability Index
HCP: Healthcare Professional
HR-QoL: Health Related Quality of Life
IA: Intra-Articular
ICS: Integrated Care System
ILD: Interstitial Lung Disease
KPI: Key Performance Indicator
KPMG: KPMG LLP
LDL: Low Density Lipoprotein
MBDA: Multi-biomarker Disease Activity
MDHAQ: Multidimensional Health Assessment Questionnaire
MDT: Multidisciplinary Team
MRI: Magnetic Resonance Imaging
MTX: Methotrexate
NP: Nurse Practitioner
OA: Osteoarthritis
OBRI: Ontario Best Practice Research Initiative
OT: Occupational Therapy
PA: Physician Assistants
PACER: Patient Centric Electronic Redesign
PAG: Patient Advocacy Group
PALS: Patient Activated Learning System
PCP: Primary Care Professional
PDSA: Plan Do Study Act
PET: Positron Emission Tomography
PGA: Physical Global Assessment
PHQ-9: Patient Health Questionnaire 9
PM: Population Management
PMR: Polymyalgia Rheumatica
PRO: Patient Reported Outcomes
PsA: Psoriatic Arthritis
PT: Physiotherapy
QoC: Quality of Care
QoL: Quality of Life
RA: Rheumatoid Arthritis
RABBIT: Rheumatoide Arthritis: Beobachtung der Biologika-Therapie
RAPID3: Routine Assessment of Patient Index Data 3
RAPP: Rheumatoid Arthritis Practice Performance
READY: RhEumAtic Disease Activity
Sanofi: Sanofi US Services Inc.
SAP: Special Access Program
SDAI: Simplified Disease Activity Index
SJC[28]: Swollen 28-Joint Count
SV: Systemic Vasculitis
T2T: Treat-to-Target
TAP: The Arthritis Program
TAP-ITP: The Arthritis Program – Interprofessional Training Program
TJC[28]: Tender 28-Joint Count
TNFi: Tumour Necrosis Factor inhibitor
TCZ: Tocilizumab
VAS: Visual Analogue Scale
VC: Video Conference
WPAI: Work Productivity and Activity Impairment Questionnaire
WRA: Washington Rheumatology Alliance

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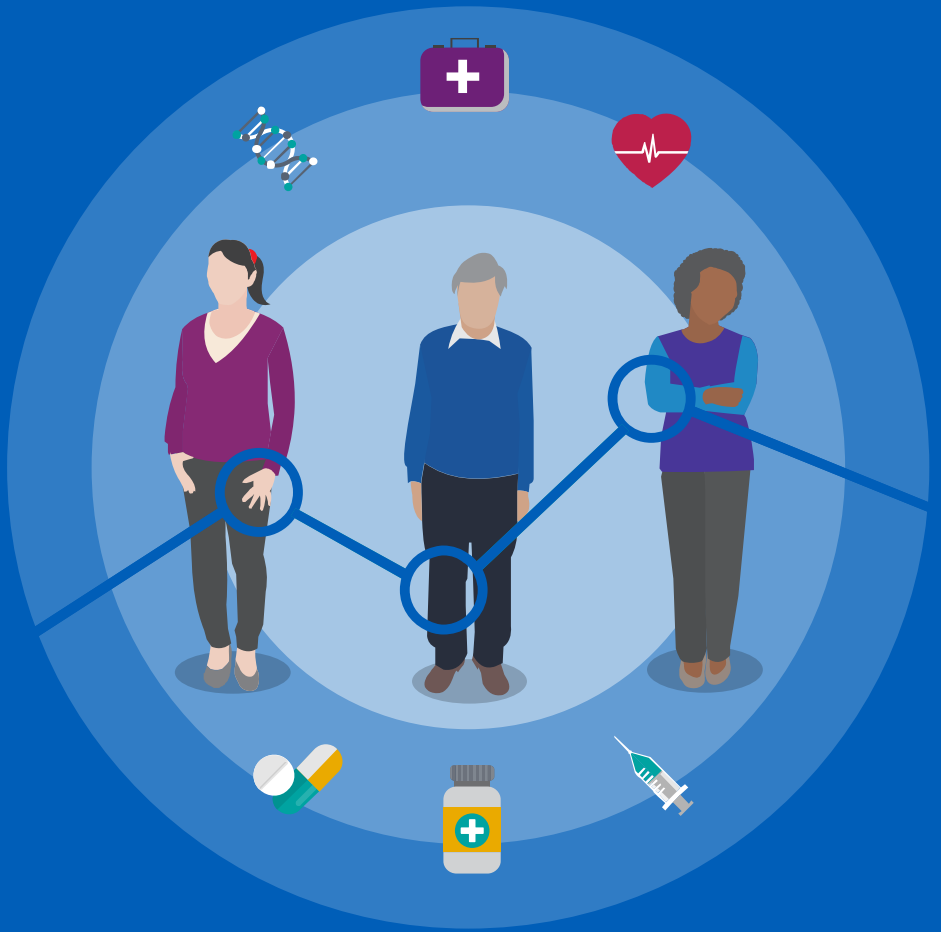


KPMG

# Treatment Guidelines

Contents

# Depending on severity of disease activity, there are different treatment recommendations for patients with Early RA[1]



| Patient with Early RA population | | ACR recommendations[a] | Treatment rationale |
|---|---|---|---|
| | 'Low disease activity' — Patients who **have never** taken a DMARD | — DMARD monotherapy (MTX preferred) over double therapy<br>— DMARD monotherapy (MTX preferred) over triple therapy | — There is no evidence in favour of triple therapy when treating early RA patients<br>— DMARD monotherapy is generally more acceptable than DMARD combination regimens to early RA patients with low disease activity, as it is easier to take and costs less to the patient<br>— DMARD monotherapy is generally better tolerated than combination DMARD therapy. When used, DMARD monotherapy must ideally be maximized |
| | 'Moderate disease activity' + 'High disease activity' — Patients who **have never** taken a DMARD | — DMARD monotherapy (MTX preferred) over double therapy<br>— DMARD monotherapy (MTX preferred) over triple therapy | — Evidence shows that there is little difference in the benefit of double DMARD therapy over monotherapy<br>— Triple therapy might be preferred by some patients who desire a more rapid short-term benefit (e.g., earlier resumption of work activity) |
| | 'Moderate disease activity' + 'High disease activity' — Patients who **have** taken a DMARD | **Step 1**<br>— Rather than continue DMARD monotherapy alone, use combination DMARDS or a TNFi or a non-TNF biologic<br>**Step 2**<br>— If disease activity remains moderate or high despite following Step 1, add low-dose glucocorticoids | — For a patient failing DMARD monotherapy, evidence supports the adding of these treatment options<br>— Biologic therapy should be used in combination with MTX, when possible, due to superior efficacy of this combination over biologic monotherapy<br>— Glucocorticoid therapy is effective as a short term treatment. The risk/benefit ratio of glucocorticoid therapy is therefore favourable as long as the dose is low and the duration of therapy is short |

**Notes**: (1) Defined as 'RA with duration of disease/symptoms of <6 months' according to the ACR

**References**: (a) Arthritis Care and Research. 2015 American College of Rheumatology Guidelines for the Treatment of Rheumatoid Arthritis. [PDF] Accessed 14 Jan 2020

# Similar to patients with Early RA, there are various systemic treatments recommended for patients with Established RA[1]

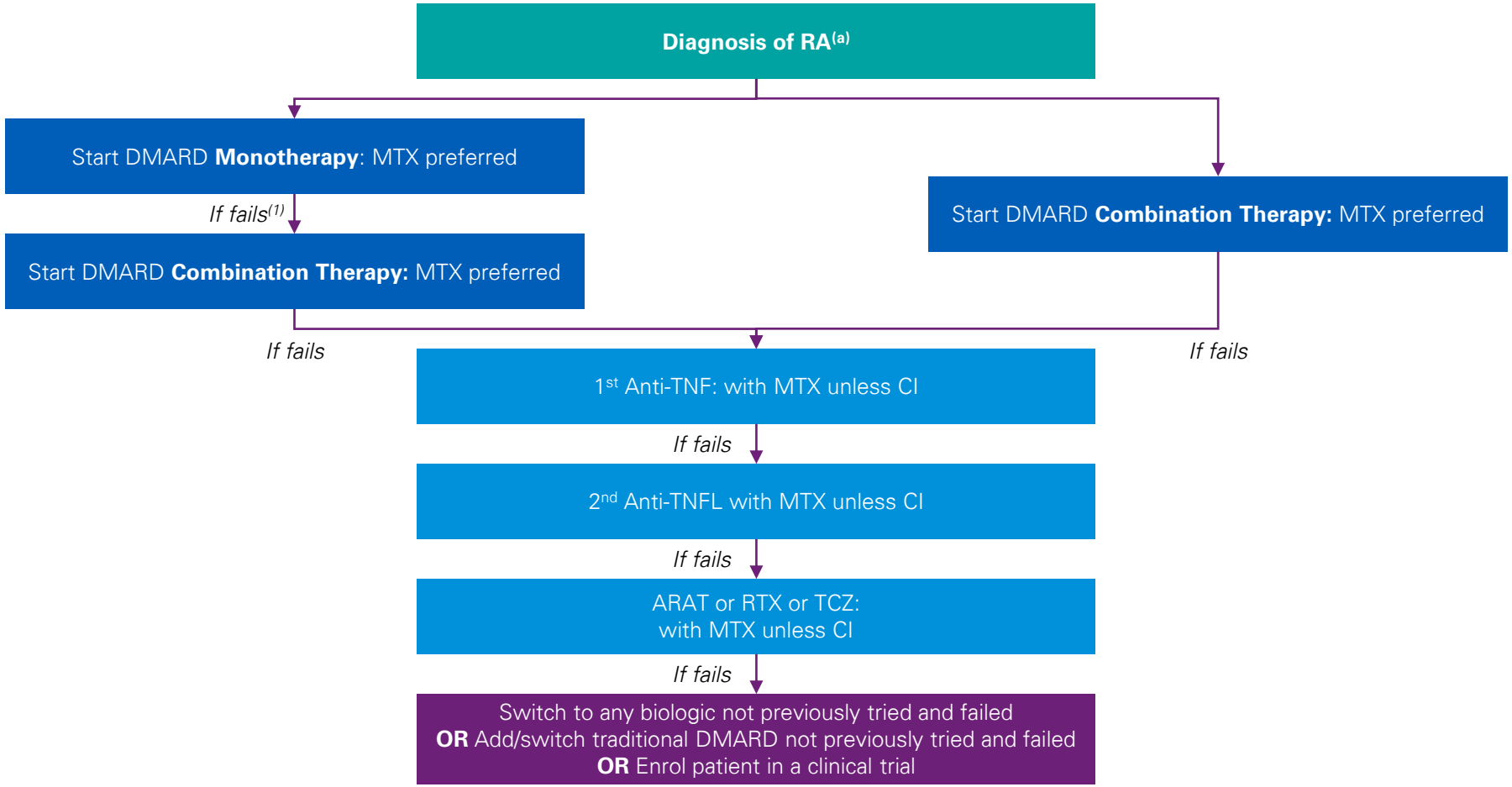


| Patient with Established RA population | | | ACR recommendations[a] | Treatment rationale |
|---|---|---|---|---|
| | 'Low disease activity' | Patients who **have never** taken a DMARD | — DMARD monotherapy (MTX preferred) over TNFi<br>— DMARD monotherapy (MTX preferred) over triple therapy | — DMARD monotherapy is available as a less costly first-line therapy that has an extensive safety record with well-documented clinical efficacy |
| | 'Moderate disease activity' + 'High disease activity' | Patients who **have never** taken a DMARD | — DMARD monotherapy (MTX preferred) over tofacitinib<br>— DMARD monotherapy (MTX preferred) over combination DMARD therapy | — Whilst evidence shows tofacitinib to be slightly more efficacious, MTX has an established safety record and is less expensive |
| | | Patients who **have** taken a DMARD | **Step 1**<br>— Rather than continue DMARD monotherapy alone, use combination traditional DMARDS or a TNFi or a non-TNF biologic or tofacitinib | — For a patient failing DMARD monotherapy, evidence supports the adding of these treatment options |
| | | | **Step 2**<br>— If Step 1 fails, use a combination of the above therapies in that order of priority | — Whilst tofacitnib demonstrates a better improvement in outcomes as measured by the Health Assessment Questionnaire when compared to TNFi, there is a limited evidence for the long-term safety use of Tofacitnib |
| | | | **Step 3**<br>— If Step 2 fails, add low-dose glucocorticoids | — The risk/benefit ratio of glucocorticoid therapy is favourable as long as the dose is low and duration of therapy is short |

**Notes**: (1) Defined as 'RA with duration of disease/symptoms of <6 months' according to the ACR

**References**: (a) Arthritis Care and Research. 2015 American College of Rheumatology Guidelines for the Treatment of Rheumatoid Arthritis. [PDF] Accessed 14 Jan 2020

# The Canadian Rheumatology Association (CRA) has also developed a set of RA recommendations to guide physicians




**Notes**: (1) Defined as 'not reaching target by 3-4 months' according to the CRA

**References**: (a) Bykerk V, et al. Canadian Rheumatology Association Recommendations for Pharmacological Management of Rheumatoid Arthritis with Traditional and Biologic Disease-modifying Antirheumatic Drugs. *The Journal of Rheumatology*. 2012;39(8):1559-1582

Contents

# Additional notes on methodology

# Contributor roles and responsibilities

## KPMG

This study was solely conducted by KPMG, including the collection, study, management, analysis and interpretation of data, and the preparation of the report

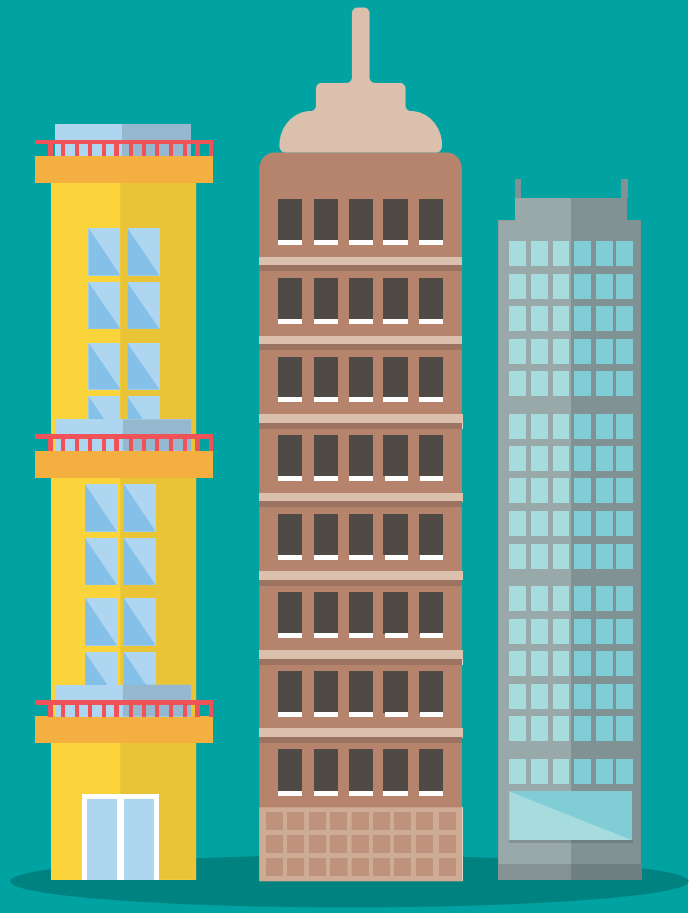
## Rheumatologists and other healthcare professionals

The rheumatologists and other healthcare professionals (e.g., comorbidity specialists and allied health professionals) were engaged to review center reports and prioritize findings. All experts that were consulted were invited to help shape the final report

## Sponsor

This report was commissioned and funded by Sanofi

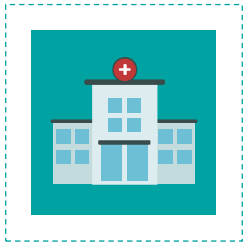
Sanofi had no role in the collection, management, analysis or interpretation of data, or preparation of the final report



# Center selection

## Approach

Secondary research was performed using publically available sources to identify potential centers. Recent ACR guidelines, conference programs, and key papers (Treatment to Target; COMORA study) were used to identify key rheumatologists and centers. The final selection aimed to include a range of healthcare systems, resources and experience (e.g., well-established/new services)



## Centers

Centers were selected based on a set of criteria which included:

— **Geography**: 9 RA centers across North America, located across a variety of states/provinces, were selected to represent a multinational approach to RA management

— **Focus**: The center's experience with RA was considered. Specialized and generalist centers were selected to ensure the report would be applicable to a wide audience

— **Center type:** The model and involvement in the wider healthcare ecosystem was also assessed, with a particular focus on:

- Funding (private/public)
- Amount and type of partnerships within the community
- Team size (large teams/small teams) (including RA teams with a single rheumatologist)
- Location (urban/rural)
- Involvement in research and universities (academic/non-academic healthcare providers)

# Limitations to our methodology

## It was recognized that there were limitations to the study methodology and several actions were taken to mitigate these

### Limited patient interviews:

— **Limitation:** There is an absence of patient interviews which limited the patient perspective on challenges in the patient pathways and intervention benefits (e.g., benefits of self-management)

— **Mitigation:** We aimed to gather patient insights from a range of healthcare professionals throughout the site visits to help ensure the patients perspectives were incorporated into the report

### Limited inclusion of centers per state/province:

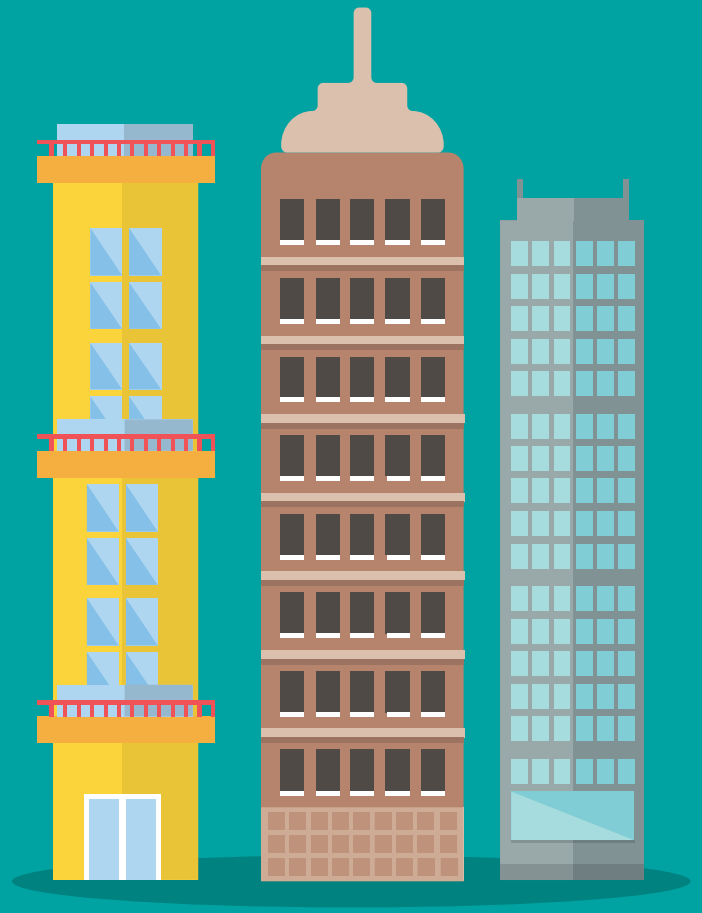
— **Limitation:** With exception to New York, only one center has been included for each state/province visited. This has limited the findings with respect to the representativeness of the wider healthcare system in which they reside

— **Mitigation:** When conducting research, we aimed to focus not solely on the centers themselves but rather their entire ecosystems, including the various institutions they collaborate with (whether formally or informally). Through this, examples of good quality of care practices have been developed that can now serve as models if implemented in other centers

### No inclusion of co-morbidity gaps, challenges and interventions

— **Limitation**: We have not included gaps, challenges and interventions related to all co-morbidities associated with RA

— **Mitigation**: We have incorporated challenges and gaps which were highlighted by the contributors during site visits



**Note**: (1) Refer to 'Additional Notes on Methodology: Contributor roles and responsibilities' on page 69 for the information on the roles and responsibilities of the contributors

# Center-specific reports


| Center-specific reports | Page |
|---|---|
| Rheumatology Institute of Montreal, Quebec, Canada | 73 |
| Southlake Regional Health Centre, Ontario, Canada | 93 |
| Geisinger, Pennsylvania, USA | 113 |
| Grace C Wright MD PC, New York, USA | 138 |
| Harbor-UCLA Medical Center, California, USA | 159 |
| Hospital for Special Surgery, New York, USA | 181 |
| Santa Fe Rheumatology, New Mexico, USA | 210 |
| University of Alabama at Birmingham Hospital, Alabama, USA | 227 |
| Western Washington Medical Group, Washington, USA | 247 |

KPMG

# Rheumatology Institute of Montreal

**Montreal, Canada**

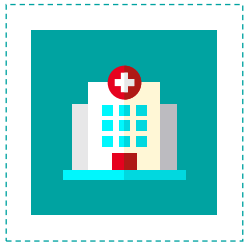
13 November 2019

**kpmg.com/uk**

# Summary

Contents

Appendix - Center Reports



## Context

### The institute

— Institut de Rhumatologie de Montreal (Rheumatology Institute of Montreal) is a rheumatology and musculoskeletal health center located in Montreal in Canada's Quebec province

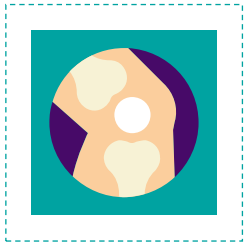
### Affiliation with the Centre Hospitalier de l'Université de Montréal (University of Montreal Health Center)

— All the rheumatologists at the center are affiliated with the University of Montreal Health Center

### Participant in the Canadian Early Arthritis Cohort Study (CATCH)

— As part of its efforts to identify RA early, the center is a participant in the CATCH study (an early arthritis cohort study following people with new onset inflammatory or rheumatoid arthritis over time, in order to examine the course of their disease and treatment responses)

— The center currently has 250 RA patients enrolled in the study



## Key strengths in the delivery of RA care

### Multidisciplinary team (MDT) comorbidity management

— The center has a comorbidity management program which focuses on cardiovascular diseases (CVD), vaccination and osteoporosis

— Healthcare providers (HCPs) at the center work in an MDT with infectious disease specialists, respirologists, microbiologists, pharmacists, generalists and nurses to provide holistic care for all types of inflammatory arthritis, such as RA, Psoriatic Arthritis (PsA) and Ankylosing Spondylitis (AS)

### Use of IT tools to facilitate clinical care

— A rheumatologist at the center has developed the *Rhumadata* tool, involving a database of patients with inflammatory conditions such as rheumatoid arthritis, ankylosing spondylitis and psoriatic arthritis

— The tool allows rheumatologists to visualize a patient's disease status using colors, fill disease activity questionnaires (e.g., HAQ) and produce reports

### Focus on research

— The center has a clinical research unit which conducts clinical trials (from phase 2 to 4) for several biologics

### Patient education

— The center team has a focus on educating patients about all types of inflammatory arthritis, including RA and RA treatment options, as well as PsA and AS

— Self-developed educational material (articles and videos) are available on the center's website. The center also hosts an annual patient conference to educate patients about RA and RA comorbidities

## Key challenges faced in delivery of RA care

### Raising funds to support activities

— The center is continuously raising funds to support its RA-related activities/interventions

— Raising funds from multiple sources (e.g., private funding) can be logistically challenging

### Managing patient expectations

— It is challenging to manage the expectations of patients with chronic conditions, who may become frustrated and disengaged with treatment

— The rheumatology team attempt to manage patient expectations through education initiatives and by providing support through the duration of their therapy

# RA in Canada: Healthcare system overview

## RA challenges in the Canadian healthcare system:

- There are insufficient rheumatologists in Canada to service the needs of the population, particularly when stratified by region[a]
- Rheumatologists are primarily based in large cities, leaving more rural areas underserved. As a consequence, many patients are likely to receive attention from a primary care physician (PCP) who may have no formal training in rheumatology[b]
- Some patients have to travel long distances for a rheumatology consultation[c]

## Canadian healthcare system overview

### Canadian healthcare system:

- The Canadian healthcare system is primarily financed through provincial/federal general tax revenue, which accounts for 70% of total healthcare spending and 11.3% of GDP. This is supplemented by expenditure through private health insurance for non-covered benefits[d]

### Publically funded healthcare:

- Healthcare is administrated by provinces and territories through local universal health insurance programs. Each provincial healthcare insurance plan is required to be publicly administered, provides comprehensive and universal coverage and is accessible across different provinces[e]
- Provincial healthcare plan coverage for additional benefits can vary. For example, individuals will have variable coverage for services such as outpatient prescription drugs, non-physician mental healthcare, vision care, dental care, home care and hospice care[e]

### Privately funded healthcare:

- Private health insurance can be purchased by individuals and covers services excluded from public reimbursement, such as vision and dental care, prescription drugs, rehabilitation services, home care and private rooms in hospitals[e]
- As of 2018, private insurance accounted for approximately 12.4% percent of total health spending.[d] In 2014, around 94% of premiums for private health plans were paid through employers, unions, or other organizations[e]
- In 2018, out-of-pocket payments represented approximately 15.4% of total health spending (risen from 14% in 2014[e])

## Rheumatoid arthritis in Canada

### Patients:

- Prevalence: 1.3%[f]
- RA has a higher prevalence in women (1.7%) compared to men (0.8%). 70% of prevalent cases are women[f]

### Physicians:

- As of January 2019, Canada had 483 rheumatologists (including non-clinicians who work primarily in administrative positions but maintain a license to practice)[g]

### Guidelines:

- RA: 2012 Canadian Recommendations for Management of RA[h]
- Comorbidities: 2015 Evidence-based Recommendations for the Management of Comorbidities in Rheumatoid Arthritis, Psoriasis, and Psoriatic Arthritis (Canadian Dermatology-Rheumatology Comorbidity Initiative)[i]

### Patient advocacy groups (PAGs)/Medical societies

- Canadian Rheumatology Association (CRA)
- Arthritis Alliance of Canada
- Arthritis Society of Canada
- Canadian Arthritis Patient Alliance (CAPA)

**References**: (a) Badley EM, et al. Meeting the challenge of the ageing of the population: Issues in access to specialist care for arthritis. *Best Practice and Research Clinical Rheumatology* 2012;26:599–609; (b) Al Maini A, et al. The global challenges and opportunities in the practice of rheumatology: White paper by the World Forum on Rheumatic and Musculoskeletal Diseases. *Clin Rheumatol.* 2015; 34(5):819–829. doi: 10.1007/s10067-014-2841-6; (c) KPMG interviews with centers; (d) How Much Does Canada Spend on Health Care. Effective Public Healthcare Panacea Project [online] https://www.ephpp.ca/healthcare-funding-policy-in-canada/. Accessed 20 September 2019; (e) The Canadian Health Care System. International Health Care System Profiles [online] https://international.commonwealthfund.org/countries/canada/. Accessed 20 September 2019; (f) Results from the Canadian Chronic Disease Surveillance System (CCDSS). National Surveillance of Osteoarthritis and Rheumatoid Arthritis in Canada. 2017 [pdf] Accessed November 15 2019; (g) Number of physicians by specialty and age, Canada, 2018. Canadian Medical Association. 2018 [pdf] Accessed November 27 2019; (h) Bykerk VP, et al. Canadian Rheumatology Association recommendations for pharmacological management of rheumatoid arthritis with traditional and biologic disease-modifying antirheumatic drugs. *J Rheumatol.* 2012;39(8):1559-82. doi: 10.3899/jrheum.110207; (i) Roubille C, et al. Evidence-based Recommendations for the Management of Comorbidities in Rheumatoid Arthritis, Psoriasis, and Psoriatic Arthritis: Expert Opinion of the Canadian Dermatology-Rheumatology Comorbidity Initiative. *J Rheumatol.* 2015;42(10):1767-80. doi: 10.3899/jrheum.141112

# The Rheumatology Center



## Institut de Rhumatologie de Montreal (Rheumatology Institute of Montreal)

| | | | |
|---|---|---|---|
| **Type** | — Rheumatology health center affiliated with the University of Montreal (and more particularly with the University of Montreal Hospital Research Centre) | **Locations** | — The institute is located in Montreal city in Quebec, Canada |
| **Core services** | — Treatment of patients with autoimmune diseases and other musculoskeletal problems such as rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and osteoarthritis | **Population served** | — Primarily serves the population of Montreal and the wider Quebec province<br>— The institute conducts approximately 22,000 consultations per year |
| **Size** | — The institute has a team of 11 rheumatologists, 6 nurses and 9 administrative staff | **Demographics** | — Adult patients with a wide range of rheumatological conditions |

## The Rheumatology Center

| | | | |
|---|---|---|---|
| **Services** | — The rheumatology center provides outpatient care for patients with rheumatic diseases<br>— An infusion clinic is also available to administer biologic therapies | **Locations** | — The rheumatology center was formerly located within the Centre Hospitalier de l'Université de Montréal (University Hospital of Montreal) but is now at an external location in Montreal, Quebec |
| **Funding and Resources** | — Funding comes from both public and industry research grants | **Teaching and research scope** | — All the rheumatologists at the center are affiliated with the Centre Hospitalier de l'Université de Montréal (University of Montreal Health Centre)<br>— The rheumatologists are also involved in conducting clinical trials (from phase 2 to 4) for several biologics |
| **Size** | — The institute has a team of 11 rheumatologists, 6 nurses and 9 administrative staff | **Demographics** | — Adult patients with a wide range of rheumatological conditions |

## Overview of Services

| Service Division | Outpatient clinic | Infusion clinic |
|---|---|---|
| Duration of stay | — Consultations last 15 – 30 minutes | — 45 minutes – 6 hours (depending on the treatment) |
| Hours of availability | — Monday – Friday (08:00 – 17:00) | — Monday – Friday (07:30 – 15:00) |
| Capacity | — 8 rheumatology consulting rooms | — 8 chairs |
| No. of patients seen | — 22,000 consultations per year | — 100 patients per month |
| Patient type catered to | — All patients with inflammatory conditions such as Rheumatoid Arthritis (RA), Spondyloarthritis (SpA) and Psoriatic Arthritis | — Patients with moderate-severe arthritis and other rheumatologic conditions |
| Services offered | — Blood tests<br>— Access to external radiography services at a nearby hospital and other private facilities (no access onsite)<br>— Clinical teaching provided for rheumatology residents affiliated with the Université de Montréal (University of Montreal) via rotations at the Institute | — Clinical research<br>— Biologic infusion therapy for patients with RA |

# The team

## Core team profiles

- 11 rheumatologists
- 6 nurses
- 9 administrative staff
- 1 orthopaedic surgeon
- Medical residents (numbers vary every month)

## Key features of the care delivery team

### Multidisciplinary care to manage comorbidities

- The rheumatologists at the center work as part of a multidisciplinary team in collaboration with infectious disease specialists, respirologists, microbiologists, pharmacists, generalists and nurses to manage comorbidities

### Focus on patient education

- The team lays emphasis on educating patients about RA and RA treatment options. Rheumatologists and nurses spend time with each patient to ensure they understand the disease, their therapy and relevant precautions
- Educational materials (articles and videos) developed by the team are available for patients on the center's website. The team also hosts an annual patient conference to educate patients about RA and RA comorbidities

### Focus on research

- Rheumatologists at the center have a focus on research. The clinical research unit at the center conducts clinical trials (phase 2 to 4) for biologic therapies

## Governance and processes

### Team meetings:

- One meeting per month to discuss research progress and initiatives
- Two or three scientific meetings every month with local or external speakers

### Protocols:

- 2012 Canadian Recommendations for Management of RA by the Canadian Rheumatology Association (CRA)
- 2016 Update of European League Against Rheumatism (EULAR) Recommendations for the management of RA
- Treat-to-Target guidelines

### Patient records:

- Electronic health records (EHR) are used at the center
- The EHR-linked Rhumadata tool is also used

### Pharmacist:

- If directed by a physician, pharmacists in Quebec are allowed to monitor and manage anticoagulants for Hypertension and Hyperlipidaemia. Patients who therefore do not have a family physician can be sent to a pharmacy for the management of certain RA comorbidities

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# Overview of interventions in place for RA & comorbidities

Case study available

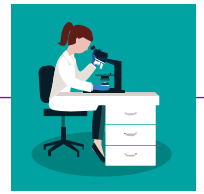
## Awareness & Prevention
Symptom identification

### Early diagnosis and treatment (see case study page 85)
- The Rheumatology Center aims to diagnose and treat RA at an early stage
- The center has 250 patients with RA enrolled in the Canadian Early Arthritis Cohort Study (CATCH), which follows patients with newly onset arthritis to examine the course of their disease

### Patient education (see case study page 86)
- Patient education programs have been developed by the center to teach patients about RA pathology and the therapy options available
- Patient education is provided through day-to-day education sessions (nurse-led), an annual patient conference, and through educational content and videos hosted on the center's website

### Medical resident education
- Rheumatologists at the center provide training and education to the four medical residents at the institute

## Referral, Diagnosis & Treatment initiation
In secondary care



### Health assessment questionnaire (HAQ)
- All patients are required to complete the HAQ on a tablet during their visit. The form takes 5-15 minutes to complete and helps the rheumatologists to assess each patient's joint condition
- Patients are also asked questions about any fractures, recent infections, their hospitalisation history, etc

### Use of disease activity measures and patient reported outcome (PROs)
- The center utilizes multiple indices to monitor disease activity and patient reported outcomes, including DAS28, Patient Global Assessment (PGA) and Work Productivity and Activity Impairment Questionnaire (WPAI)

### Diagnostic tests
- Analyses of diagnostic tests such as blood tests and radiography readings are performed to promote prompt and accurate diagnoses

### Clinical trials and research studies
- The clinical research unit at the center conducts clinical trials (phase 2 to 4) for several biologic therapies
- Currently, the center has 20 studies ongoing. Patient profiles are screened using the Rhumadata tool to assess their suitability for joining studies

## Treatment and Management
Medical management

### Rhumadata tool (see case study page 88)
- Rhumadata is a database used to manage patients with inflammatory conditions such as RA
- It allows a rheumatologist to visualize the disease status of a patient using colors, review results of questionnaires (e.g., HAQ), produce different reports (e.g., survival curves) and create templates for repeated patient follow-up notes

### RA comorbidity management (see case study page 90)
- The center has a comorbidity management program focusing on cardiovascular disease (CVD), vaccination and osteoporosis
- For each comorbidity, the center has developed a document detailing associated risk factors and screening procedures for other centers to use throughout the province

### Multidisciplinary team
- Healthcare providers at the center provide holistic, multidisciplinary RA care through collaborations between rheumatologists, infectious disease specialists, respirologists, microbiologists, pharmacists and nurses

### Infusion unit
- An 8-chair, rheumatology-specific infusion unit (overseen by four nurses) is available for patients on infusion therapy

### Expanded role of technical nurse
- A technical nurse oversees infusion administration and educates patients who have received a new diagnosis and/or are starting a new therapy (e.g., biologics/biosimilars)

Interventions





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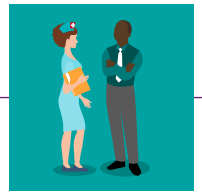
## Treatment and Management
Non-medical management

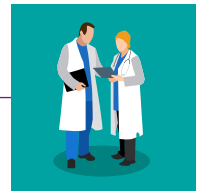


### Access to external physiotherapists and occupational therapists
— Rheumatologists at the center maintain connections with a rehabilitation center in Montreal, which employs physiotherapists, occupational therapists and social workers
— RA patients may be referred to the rehabilitation center by their rheumatologist if they meet certain qualifying criteria

### Collaboration with dieticians
— Rheumatologists may refer RA patients to an external dietician as required

### Self-help groups
— The center's website contains information on self-help groups in Quebec (i.e. for patients to connect with other RA patients)

## Medical care & Follow-up
Monitoring of chronic disease/flare up



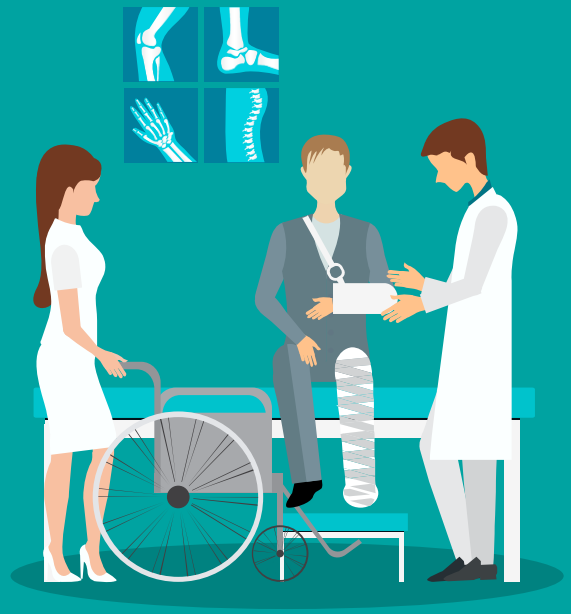
### Follow-up appointment
— After their first appointment, patients are asked to book a follow-up appointment themselves through reception. The receptionist may also explain to patients why certain tests have been requested by the rheumatologist

### Nurse phone calls
— Nurses contact patients to ensure that they are aware of their follow-up appointment schedule
— Nurses are also available to answer patient questions over the phone. Patients may call the nurses 08:00-16:00 (Mon-Fri) who will endeavour to resolve their queries

### Lasting relationships with patients
— Administrative support staff build effective relationships with patients who regularly visit the center for infusions
— Administrative support staff makes sure to call clinical trial patients to see how well they are managing their symptoms following the conclusion of their study

### Flare ups
— Patients experiencing arthritis flare ups may call their rheumatologist for a quick status assessment
— The rheumatologist will either consult the patient on the phone or book the patient an earlier 1:1 consultation

# These interventions have improved outcomes



"We have a global approach to patient care"

– Rheumatologist

## How do you quantify the benefits in RA?

### Objective measures (KPIs):

- **Disease Activity Score 28 (DAS28):** used to measure patient outcomes in RA by examining 28 joints for disease activity[(a)]
- **Erythrocyte sedimentation rates (ESR):** a biomarker used to diagnose inflammatory arthritis[(b)]
- **C-reactive protein (CRP):** a biomarker used to assess disease activity in rheumatoid arthritis (RA)[(c)]

### PROs:

- **RAPID3 (Routine Assessment of Patient Index Data 3):** pooled index of 3 patient-reported core RA measures (function, pain, and patient global estimate of status)[(d)]
- **Health Assessment Questionnaire (HAQ):** a self-reported measure of functional impairment based on five patient-centered dimensions[(e)]
- **Physical Global Assessment (PGA):** patient's self-assessment of overall RA disease activity which is assessed using a single question with a 0–10 or 0–100 response[(f)]
- **Work Productivity and Activity Impairment Questionnaire (WPAI):** a questionnaire for assessing impairments in paid work and activities in RA patients[(g)]
- **Visual Analogue Scale for Pain (Pain VAS):** a one-dimensional measure of pain intensity, which is used in diverse adult populations, including those with rheumatic diseases[(h)]

### Research PROs:

- Using the Rhumadata database (*see case study pages 88-89)* and Visual Analogue Scale (VAS), several research PROs are followed by the center

## How have these interventions improved patient outcomes?

### RA

- Early diagnosis of RA in patients
- Potential for improved quality of care and treatment outcomes

### Comorbidities

- Specialized management of comorbidities through collaboration of care
- Improved access for patients to RA comorbidity specialists

**References**: (a) Van Riel PL, et al. The Disease Activity Score (DAS) and the Disease Activity Score using 28 joint counts (DAS28) in the management of rheumatoid arthritis. *Clin Exp Rheumatol.* 2016;34(5 Suppl 101):S40-S44; (b) Orr CK, et al. The Utility and Limitations of CRP, ESR and DAS28-CRP in Appraising Disease Activity in Rheumatoid Arthritis. Front Med (Lausanne). 2018; 5:185. doi: 10.3389/fmed.2018.00185; (c) Kim KW, et al. Role of C-reactive protein in osteoclastogenesis in rheumatoid arthritis *Res Ther.* 2015;17(1):41. doi: 10.1186/s13075-015-0563-z; (d) Pincus Tet al. RAPID3, an index to assess and monitor patients with rheumatoid arthritis, without formal joint counts: similar results to DAS28 and CDAI in clinical trials and clinical care. *Rheum Dis Clin North Am.* 2009;35(4):773-8. doi: 10.1016/j.rdc.2009.10.008; (e) Bruce B, et al. The Health Assessment Questionnaire (HAQ). *Clin Exp Rheumatol.* 2005;23(5 Suppl 39):S14-8; (f) Nikiphorou E, et al. Patient global assessment in measuring disease activity in rheumatoid arthritis: a review of the literature. *Arthritis Res Ther.* 2016;18:251. doi: 10.1186/s13075-016-1151-6; (g) Zhang W, et al. Validity of the work productivity and activity impairment questionnaire--general health version in patients with rheumatoid arthritis. *Arthritis Res Ther.* 2010;12(5):R177. doi: 10.1186/ar3141; (h) Downie WW, et al. Studies with pain rating scales. *Ann Rheum Dis.* 1978;37(4):378-81

# How can care be improved?

## What is next for the center?

**Overview: Train the next generation of rheumatologists**

— **Why?** Rheumatologists at the center are looking to recruit young rheumatologists to continue their activities into the future

— **How?** The center plans to grow interest in rheumatology in the medical student population and recruit young rheumatologists, whom they will train to run the center in the future

## What advice would you give less specialized centers?

**Overview of advice:** Proactively facilitate collaboration between a number of different comorbidity specialists and rheumatologists

— **Why?** Treating RA and its associated comorbidities through co-operation between different healthcare specialists and rheumatologists promotes positive patient outcomes

— **How?** Establish multidisciplinary teams that contain a variety of healthcare specialists (e.g., rheumatologists, cardiologists, nutritionists)

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# Case studies


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| RA comorbidity management | 90 |


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# Early arthritis diagnosis and treatment

## Overview

— The center focuses on diagnosing and treating RA at an early stage, and is a participant in the Canadian Early Arthritis Cohort Study (CATCH)

— CATCH (established 2007) is an early arthritis cohort study that follows people with new onset inflammatory of rheumatoid arthritis over a long period of time, in order to examine the course of their disease and treatment responses


**Logo of the Canadian Early Arthritis Cohort Study (CATCH)**

## What is the rationale?

— Rheumatoid arthritis (RA) is an inflammatory progressive disease which can lead to joint destruction and disability in the absence of appropriate treatment[a]

— Identification of RA at an earlier stage can affect the course of the disease, e.g., by preventing the development of joint erosions[a]

## What are the key features of the intervention?

— The Institut de Rhumatologie de Montreal is a participating center in the Canadian Early Arthritis Cohort Study (CATCH) with 250 RA patients enrolled

— CATCH is a Canadian multicenter research study which began in 2007, with the aim to improve quality of care for people with early inflammatory arthritis[b]

— The study is the only Canada-wide early arthritis cohort study following people with new onset inflammatory or rheumatoid arthritis over time, in order to examine the course of their disease and their responses to different treatments from different rheumatologists[b]

— 17 clinical sites across Canada are part of the CATCH and include teaching hospitals, community-based hospitals and clinics[b]

— CATCH has more than 3,000 participants with ~350-400 additional participants joining each year[b]

## What are the activities undertaken?

— Interested patients may join the study by contacting the center's rheumatologist (who is a participant in CATCH)

— The CATCH study requires seeing each patient once per year; however, rheumatologists at the center believe study patients should be seen more often. Enrolled patients are therefore seen every 3 months by the nurse

— As part of the study, information about the patient's health status, treatments, joint swelling, and overall disease progress is regularly collected. Comorbidity data is also captured (e.g., lipid levels, cardiovascular symptoms)

## Benefits

### Benefits to patients:

— Early diagnosis and early treatment strategies can help patients to achieve remission sooner

### Benefits to HCPs:

— Potential for improving quality of care and treatment outcomes in patients with early RA

**References**: (a) Heidari B. Rheumatoid Arthritis: Early diagnosis and treatment outcomes. *Caspian J Intern Med.* 2011; 2(1):161–170; (b) About Us. Canadian Early Arthritis Cohort (CATCH) [online] http://www.earlyarthritis.ca/about.php Accessed 18 November 2019





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# Patient education

## Overview

— The center has a focus on providing patient education, which is primarily delivered through three channels:
  - Day-to-day education sessions
  - Annual patient conference
  - Center website

## What is the rationale?

— Education and counselling can help patients to better understand the nature of RA and cope with the challenges of the condition[(a)]

— Patients and providers can work together to formulate a long-term treatment plan, define reasonable expectations, and evaluate standard and alternative treatment options[(a)]

## What are the key features of the intervention?

— The center has a focus on providing patient education about RA, as well as PsA and AS, which is primarily provided through three channels:
  - Day-to-day education sessions
  - Annual patient conference
  - Center website

— The day-to-day education sessions are mostly led by a nurse

— Rheumatologists at the center also collaborate with physiotherapists and dieticians to deliver patient education

— The center organises an Annual Patient Conference Day (launched in 2011) for patients with RA and other musculoskeletal diseases

— The center website also hosts patient education materials, which use simple terms to teach patients about RA and the therapies available

## What are the activities undertaken?

### Day-to-day patient education

— The nurse sees each patient immediately after the rheumatologist, to make sure they understands their disease, therapies and related precautions. The nurse education session lasts 30-60 minutes

— Patient education is provided on three main topics: diagnosis, treatment side-effects and impact of the disease (i.e. how the disease impacts the family, lifestyle etc.)

— The nurse ensures the patient understands their diagnosis before they advance to the next stages of disease management

— The nurse uses several educational tools including charts and informative materials from external organizations

— A primary aim of the nurse consultation is to make sure the patient understands their medication(s). Patients are provided with medication documentation/leaflets, along with information on possible side-effects. If appropriate, patients may also be taught how to perform sub-cutaneous self-injections

— Patients are directed to external websites (e.g., the website of the Canadian Arthritis Society and the 'RheumInfo' website) which contain further information and educational materials[(b)(c)]

— Patients may also call the nurse at the center from 08:00-16:00 with any urgent questions

**References**: (a) Patient education: Rheumatoid arthritis treatment (Beyond the Basics). UpToDate [online] https://www.uptodate.com/contents/rheumatoid-arthritis-treatment-beyond-the-basics Accessed 11 October 2019; (b) Online Learning Modules. Arthritis Society [online] https://arthritis.ca/support-education/online-learning Accessed 26 November 2019; (c) Rheumatoid Arthritis. RheumInfo [online] https://rheuminfo.com/diseases/rheumatoid-arthritis/ Accessed 26 November 2019

## What are the activities undertaken? (cont.)

### Annual patient conference

- Every year, the center hosts a conference at a hotel in Montreal for patients with RA, psoriatic arthritis, ankylosing spondylitis, osteoarthritis or osteoporosis
- The conference is attended by 100-150 patients and their family members
- HCPs who attend the conference include rheumatologists, nurses, cardiologists, psychologists, pharmacists, kinesiologists, sexologists, nutritionists and social workers
- During the conference, different topics are discussed including comorbidities relating to cardiovascular health, gastrointestinal (GI) health, dermatology, psychology, sexology and dietetics

### Website

- The center's website (established 2016) has so far received over 22,000 visits. The educational materials (articles and videos) hosted on the website are managed by a nurse
- The website content has been developed using inputs from rheumatologists, a sexologist, a physiotherapist and a nutritionist
- Information on topics such as injection techniques, treatment adherence, etc. is also available on the website

## Benefits

### Benefits to patients:

- Improved understanding of RA, PsA and AS, and the treatment options available
- Opportunity for patients to learn self-management techniques, which may improve treatment outcomes

### Benefits to HCPs:

- HCPs can set patient expectations and have the opportunity to build lasting physician-patient relationships
- Potential for improved patient treatment adherence

## What are the outcomes so far?

- The center's website has received over 22,000 visits since it was established in 2016

## Challenges

- Raising funds to facilitate patient education activities (e.g., patient conferences)
- Patient education can require long and detailed consultations, which may not be possible given the time demands on HCPs

> Over the years, we have developed patient education programs dedicated to teaching patients about the pathology of RA and the therapies used
>
> - Rheumatologist

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# Rhumadata tool

## Overview

— Rhumadata (built in 1999 by one of the center rheumatologists) is a database which captures data of patients with inflammatory conditions such as rheumatoid arthritis, ankylosing spondylitis and psoriatic arthritis

— Rhumadata is split into four main sections:

- Inflammatory
- Questionnaires
- Reports
- Accelerator Note

## What is the rationale?

— Greater implementation and standardisation of relevant RA measures can improve patient care standards and provide learning opportunities for HCPs[a]

— Incorporating passive and patient-reported outcomes into self-management apps (and the patient's health record) has the potential to improve treatment outcomes[a]

## What are the key features of the intervention?

— Rhumadata (built in 1999 by a center rheumatologist) is a database which captures data of patients with inflammatory conditions such as rheumatoid arthritis, ankylosing spondylitis and psoriatic arthritis

— The database covers ~4,000 RA patients and ~1,000 spondyloarthritis patients. Patients are recruited on a voluntary basis

— Rhumadata consists of four main sections:[b]

- **Inflammatory:** used to manage patients with inflammatory diseases such as RA, psoriatic arthritis and ankylosing spondylitis
- **Questionnaires:** helps to fill disease activity questionnaires such as HAQ, BASFI, BASG, WOMA, SF-36, DLQI, PHQ-9, WPAI, etc.
- **Reports:** helps to produce different reports such as survival curves

## What are the key features of the intervention? (cont.)

- **Accelerator note (still under development):** helps to create templates for repetitive notes taken during patient follow-up appointments

## What are the activities undertaken?

— Upon arrival at the center, each patient is asked to complete a questionnaire on a tablet (taking 5-15 minutes), with the answers subsequently uploaded onto the patient's electronic health record (EHR) which is linked to Rhumadata

— Rheumatologists record all test results on Rhumadata, including regular health checks, blood tests, radiographies, etc. They may then analyse the efficiency of RA drugs to promote the best patient outcomes

— Laboratory test results are sent directly to the database. Tests are carried out at the hospital, with the results uploaded onto the EHR

— The data allows the rheumatologist to see the patient objectively and track disease progression over time. The system allows the disease status of a patient to be visualized using colors

— A visual on the tool also allows a rheumatologist to calculate the DAS28 score to assess disease activity

**References**: (a) Dixon WG et al. Using technology to support clinical care and research in rheumatoid arthritis. *Curr Opin Rheumatol.* 2018;30(3):276-281. doi: 10.1097/BOR.0000000000000485; (b) What we do!. Rhumadata [online] https://rhumadata.info/outils.html Accessed 26 November 2019

## What are the activities undertaken? (cont.)

- The tool allows rheumatologists to assess body areas/organs beyond the joints. For example, ageing patients with lower liver or kidney performance can be monitored (e.g., haemoglobin levels are checked to detect anaemia; creatinine levels are monitored to assess kidney function)
- Patients are asked questions about recent infections, hospitalisations, consultations with other doctors, emergency department visits, etc., which allows the rheumatologist to conduct pharmacoeconomic studies
- The tool also enables rheumatologists to run self-assessments. For example: what percentage of patients are treated with a combination therapy?; what percentage of patients are in remission or with low disease activity? etc.

## Benefits

**Benefits to patients:**

- Visuals illustrating disease activity can improve understanding of the disease and may encourage patients to agree to appropriate treatments
- Potential for improved treatment adherence

**Benefits to HCPs:**

- Rheumatologists can have a clear view of disease activity and make more informed treatment decisions
- Rheumatologists may look at other organs (and comorbidities) beyond the joints
- Facilitates benchmarking within the practice
- Provides real-time access to patient/physician-reported metrics (DAS 28, BASDAI, RAPID 3, CRP, ESR, etc.)

## Challenges

- The tool can be technically challenging to adopt (e.g., relevant HCPs may require training)

## What are the next steps?

- Rhumadata is expected to serve as a medical education tool, allowing clinicians to compare their practice with others and conduct self-assessments

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> We run many comparisons with Rhumadata, which prompts us to ask the right questions. This approach helps patients and society as whole as we can look at the economic impact of therapies
>
> - Rheumatologist

# RA comorbidity management

## Overview

— The center runs a comorbidity management program focusing on cardiovascular diseases (CVD), vaccination and osteoporosis

— The program is led by the center in collaboration with general practitioners (GPs), comorbidity specialists and community pharmacists

— For each comorbidity, the center has developed a document which details the approach to screening and treating the comorbidity

— The program was piloted in 2018 and is being rolled out to the wider province of Quebec

## What is the rationale?

— There is a higher prevalence of comorbidities and related risk factors among patients with RA. RA comorbidities include cardiovascular disease (CVD), osteoporosis, obesity and depression[a]

— If the co-morbid disease is diagnosed early, appropriately treated and monitored, its negative impact on the course of RA may be significantly reduced[b]

## What are the key features of the intervention?

— In 2015, the rheumatologists at the center participated in a Canadian consensus on the investigation of RA comorbidities, in order to develop recommendations on RA comorbidity management[c]

— In 2018, they developed tools for the identification of comorbidities and piloted the project throughout the Quebec province

— The center focuses on identifying three key RA comorbidities: CVD, infections and osteoporosis

— For each comorbidity, the center has developed a document which details the approach to screening and treating the comorbidity. There is also a page listing the risk factors, which can be added to a patient's electronic health record (EHR)

## What are the key features of the intervention? (cont.)

— A committee (including rheumatologists, one pharmacist and one nurse from the center) is responsible for developing the documents

— The nurse and the pharmacist are responsible for disseminating the recommendations to their respective communities across the province

## What are the activities undertaken?

### Cardiovascular disease (CVD)

— Patients are screened for CVD by identifying risk factors, monitoring blood pressure and obtaining a lipid profile. Framingham Risk Score is used to calculate CVD risk[d]

— The rheumatologists have experience treating CVD conditions and can initiate treatment by following published guidelines/recommendations

— Managing CVD risks includes achieving rheumatic disease remission, encouraging lifestyle changes (e.g., healthy diet, smoking cessation) and initiating antihypertensive or lipid-lowering therapy

— The center uses the INESSS protocol to manage hyperlipidaemia, hypertension and diabetes[e]

— Patient results may also be shared with a family physician or cardiologist, if a consultation with either is required

**References**: (a) Dougados M, et al. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). *Ann Rheum Dis.* 2014;73(1):62-8. doi: 10.1136/annrheumdis-2013-204223; (b) Filipowicz-Sosnowska A. Comorbidities and multimorbidity in rheumatic diseases. *Reumatologia.* 2019; 57(1):1–2. doi: 10.5114/reum.2019.83232; (c) Roubille C, et al. Evidence-based Recommendations for the Management of Comorbidities in Rheumatoid Arthritis, Psoriasis, and Psoriatic Arthritis: Expert Opinion of the Canadian Dermatology-Rheumatology Comorbidity Initiative. *J Rheumatol.* 2015 Oct;42(10):1767-80. doi: 10.3899/jrheum.141112; (d) Chung CP, et al. Utility of the Framingham risk score to predict the presence of coronary atherosclerosis in patients with rheumatoid arthritis. *Arthritis Res Ther.* 2006;8(6):R186; (e) INESSS's Guides. INESSS [online] https://www.inesss.qc.ca/en/publications/inessss-guides.html. Accessed 26 November 2019

## What are the activities undertaken? (cont.)

### Infections

- The center focuses on preventing infections (e.g., tuberculosis and hepatitis) in patients with RA and has developed a vaccination protocol, which has been adopted across Canada
- HCPs at the center work as a multidisciplinary team, with rheumatologists, infectious disease specialists, respirologists, microbiologists, pharmacists, generalists and nurses working collaboratively to prevent infections
- The RABBIT tool is used to calculate risk of infection among patients with RA[(a)]
- As soon as a patient is diagnosed with an immune-mediated inflammatory disease, their vaccination booklet is examined thoroughly and any missing vaccine is administered promptly
- Patients are also provided with educational materials covering infections

### Osteoporosis

- Bone mineral density of patients is measured during osteoporosis diagnosis
- The fracture risk of RA patients is calculated using the CAROC tool and the FRAX tool (an online tool for assessing the 10-year absolute risk of major osteoporotic fractures)[(b)(c)]
- Patients are classified as low, medium or high risk based on their 10-year fracture risk
- Patients are also introduced to non-pharmacological treatments such as smoking cessation, weight-bearing physical exercises, balanced nutrition etc.

## Benefits

### Benefits to patients:

- Improved access to multidisciplinary specialist care for RA and RA comorbidities
- Greater provision of support for patients, thereby increasing the potential for improved treatment outcomes

### Benefits to HCPs:

- Enhanced communication and knowledge-sharing between RA and RA comorbidity specialists

## What are the outcomes so far?

- Rate of vaccination has increased
- Patients use less corticosteroids and NSAIDS, which contribute to comorbidities
- Patients feel much more involved and keen to keep a healthier lifestyle through the increased provision of support

## What are the next steps?

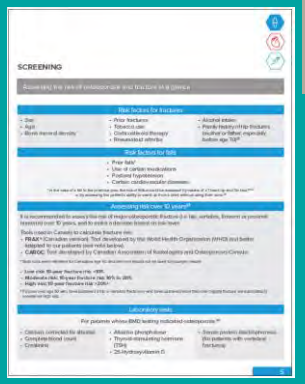
- The center is in the process of evaluating the outcomes and their impact over the long term
- In order to address the limited time and financial resources that are available, the center has started to develop a patient tool to assist with RA comorbidity management

**References**: (a) About RABBIT. RABBIT – Rheumatoide Arthritis: Beobachtung der Biologika-Therapie [online] https://biologika-register.de/en/rabbit/about-rabbit/ Accessed November 28 2019 (b) CAROC. Osteoporosis Canada [online] https://osteoporosis.ca/health-care-professionals/tools/caroc/ Accessed November 28 2019 (c) Calculation Tool. FRAX Fracture Risk Assessment Tool [online] https://www.sheffield.ac.uk/FRAX/tool.aspx?country=19 Accessed November 28 2019



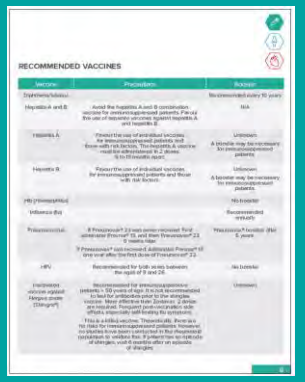
## Screenshots of the RA comorbidity screening documents


CVD risk screening




Osteoporosis risk screening


Information on vaccination and infection prevention




Recommended vaccines for RA comorbidities

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KPMG

# Southlake Regional Health Centre

Ontario, Canada

Visit conducted on 10th December 2019

kpmg.com/uk

# Summary

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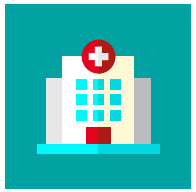

## Context

### The center

- Southlake Regional Health Centre is a community hospital committed to excellence in patient care. It is a public entity governed by a board of directors
- The campus offers a wide variety of clinical services for all types of therapies, along with diagnostic services, in Newmarket, Ontario

### The Arthritis Program (TAP)

- TAP is an innovative, inter-professional team based program that cares for patients with a wide range of musculoskeletal disorders in Newmarket and the wider Ontario region. The program was initially funded through a grant from the Ontario Ministry of Health in 1991. It is now funded through the hospital global budget
- The program provides outreach and community based services to patients through physicians and allied health professionals (AHPs) located within the Ontario region
- The program provides care for patients with arthritis, and musculoskeletal diseases such as inflammatory arthritis, osteoporosis, osteoarthritis, juvenile arthritis and fibromyalgia

## Key strengths in the delivery of RA care

### Team based care

- TAP includes a team of rheumatologists working together with AHPs, including occupational therapists, physiotherapists, pharmacists, dietitians, kinesiologists and social workers
- The aim of the program is to reduce delay in diagnosis and treatment of inflammatory arthritis, along with providing comprehensive management of arthritis associated disabilities (e.g., pain, stiffness, stress)
- A central triage process enables easy receipt between primary care and other sub specialties
- Team-based care at TAP also includes mastering core musculoskeletal assessment skills amongst all professionals including MD and AHP, use of a single chart, and a partnership between patient and family. In this context, TAP is introduced to the patient as their 'portal' for 'arthritis care'

### Patient education

- TAP runs dedicated therapeutic education programs for patients and their families to educate them on their condition and empower them to manage their everyday symptoms. Patients are enrolled in the education sessions within a month of starting treatment to support effective self-management
- These educational sessions include materials related to or from the research studies Canadian Early Arthritis Cohort (CATCH), Ontario Best Practices Research Initiative (OBRI), Spondyloarthritis Research Consortium of Canada (SPARCC) and Canadian Scleroderma Research Group (CSRG)

### Focus on research

- The team have a strong focus on research (clinical and basic science) and aim to embed the learning in their delivery of care
- Currently, the team is running four observational studies in rheumatoid arthritis. These include Inflammatory Joint Disease; Osteoarthritis, Osteoporosis, and Chronic Pain Syndrome (FM)

## Key challenges faced in delivery of RA care

### Coordinating interdisciplinary care

- Adopting an inter-professional team approach can be challenging as it requires additional training of team members, other than the musculoskeletal skills. These include developing and understanding common messaging, establishing trust, pursuing completeness and consistency of record-keeping, and a commitment to renewal and innovation
- Consistently sharing accurate patient information among the AHPs requires time and dedication from the entire team and any delay can impact the treatment plan

### Community awareness

- There can be apprehension among patients and their families regarding certain long term treatments. For example, there is a fear of side effects, and some patients may only adhere to their medication regimen during symptom flares

# RA in Canada: Healthcare system overview

## RA challenges in the Canadian healthcare system:

- There are insufficient rheumatologists in Canada to service the needs of the population, particularly when stratified by region[a]
- Rheumatologists are primarily based in large cities, leaving more rural areas underserved. As a consequence, many patients are more likely to receive attention from a primary care physician (PCP), who may have no formal training in rheumatology[b]

## Canadian healthcare system overview

### Canadian healthcare system:

- The Canadian healthcare system is primarily financed through provincial/federal general tax revenue, which accounts for 70% of total healthcare spending and 11.3% of GDP. This is supplemented by expenditure through private health insurance for non-covered benefits[c]

### Publicly funded healthcare:

- Healthcare is administrated by provinces and territories through local universal health insurance programs. Each provincial healthcare insurance plan is required to be publicly administered, provides comprehensive and universal coverage and is accessible across different provinces[d]
- Provincial healthcare plan coverage for additional benefits can vary. For example, individuals will have variable coverage for services such as outpatient prescription drugs, non-physician mental healthcare, vision care, dental care, home care and hospice care[d]

### Privately funded healthcare:

- Private health insurance can be purchased by individuals and covers services excluded from public reimbursement, such as vision and dental care, prescription drugs, rehabilitation services, home care and private rooms in hospitals[d]
- As of 2018, private insurance accounted for approximately 12.4% percent of total health spending[c]. In 2014, around 94% of premiums for private health plans were paid through employers, unions, or other organizations[d]
- In 2018, out-of-pocket payments represented approximately 15.4% of total health spending (risen from 14% in 2014[d])

## Rheumatoid arthritis in Canada

### Patients:

- Prevalence: 1.3%[e]
- RA has a higher prevalence in women (1.7%) compared to men (0.8%). 70% of prevalent cases are women[e]

### Physicians:

- As of January 2019, Canada had 483 rheumatologists (including non-clinicians who work primarily in administrative positions but maintain a license to practice)[f]

### Guidelines:

- RA: 2012 Canadian Recommendations for Management of RA (CRA)[g]
- Comorbidities: 2015 Evidence-based Recommendations for the Management of Comorbidities in Rheumatoid Arthritis, Psoriasis, and Psoriatic Arthritis (Canadian Dermatology-Rheumatology Comorbidity Initiative)[h]

### Patient advocacy groups (PAGs)/Medical societies:

- Canadian Rheumatology Association (CRA)
- Arthritis Alliance of Canada
- Arthritis Society of Canada
- Canadian Arthritis Patient Alliance (CAPA)

**References**: (a) Badley EM, et al. Meeting the challenge of the ageing of the population: Issues in access to specialist care for arthritis. *Best Practice and Research Clinical Rheumatology* 2012;26:599–609; (b) Al Maini A, et al. The global challenges and opportunities in the practice of rheumatology: White paper by the World Forum on Rheumatic and Musculoskeletal Diseases. *Clin Rheumatol.* 2015; 34(5):819–829. doi: 10.1007/s10067-014-2841-6; (c) KPMG interviews with centers; (d) How Much Does Canada Spend on Health Care. Effective Public Healthcare Panacea Project [online] https://www.ephpp.ca/healthcare-funding-policy-in-canada/. Accessed 20 September 2019; (e) The Canadian Health Care System. International Health Care System Profiles [online] https://international.commonwealthfund.org/countries/canada/. Accessed 20 September 2019; (f) Results from the Canadian Chronic Disease Surveillance System (CCDSS). National Surveillance of Osteoarthritis and Rheumatoid Arthritis in Canada. 2017 [pdf] Accessed November 15 2019; (g) Number of physicians by specialty and age, Canada, 2018. Canadian Medical Association. 2018 [pdf] Accessed November 27 2019; (h) Bykerk VP, et al. Canadian Rheumatology Association recommendations for pharmacological management of rheumatoid arthritis with traditional and biologic disease-modifying antirheumatic drugs. *J Rheumatol.* 2012;39(8):1559-82. doi: 10.3899/jrheum.110207; (i) Roubille C, et al. Evidence-based Recommendations for the Management of Comorbidities in Rheumatoid Arthritis, Psoriasis, and Psoriatic Arthritis: Expert Opinion of the Canadian Dermatology-Rheumatology Comorbidity Initiative. *J Rheumatol.* 2015;42(10):1767-80. doi: 10.3899/jrheum.141112





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# The Rheumatology unit

## Southlake Regional Health Centre

| | | | |
|---|---|---|---|
| **Type** | — Southlake Regional Health Centre (Southlake) is a community hospital with an interest in research and teaching to improve patient care. It is a public entity governed by a board of directors | **Locations** | — The hospital is located in Newmarket, Ontario |
| **Core services** | — Southlake is a large community hospital that provides adult and pediatric services, as well as regional programs in Cardiology, Oncology, Thoracic Surgery and Rheumatology. As the sole hospital for 50km, it provides a range of lab and imaging modalities, with specialists available in most fields | **Population served** | — The primary catchment is 250K, with regional therapeutic programs serving over 500K[(b)]<br>— The hospital also provides outreach services to patients, physicians and allied health professionals both within and outside the Newmarket area |
| **Size** | — Southlake has 3,400 employees (including 580 physicians and 800 volunteers). The center has a total inpatient capacity of over 426 beds and provide services to over 24,000 inpatient and 530,000 outpatients visits per year[(a)] | **Demographics** | — Wide range of patients from pediatric to adults |

## The Arthritis Program (TAP)

| | | | |
|---|---|---|---|
| **Services** | — TAP is a program which aims to provide early access to treatment for patients suffering from all types arthritic and inflammatory conditions<br>— TAP is committed to research and providing education to specialists as well as patients to better manage the arthritic conditions | **Collaborations** | — Partners with community agencies for individuals with arthritis and other chronic diseases to participate in exercise programs[(c)]<br>— Collaborates closely with The Arthritis Society, the Canadian Arthritis Patient Alliance, Osteoporosis Canada, and Bone and Joint Canada<br>— For pediatrics, TAP also collaborates with the Hospital for Sick Children, Holland Bloorview Kids Rehabilitation Hospital, and local pediatricians for patients with juvenile arthritis[(d)] |
| **Funding and Resources** | — TAP was initially funded through grants received from Ontario Ministry of Health and Long-Term Care from 1991<br>— Current funding is now provided and dependent on the Global Hospital budget. TAP also applies for and may receive grants and awards for specific projects | **Teaching/ research scope** | — Rheumatologists at the center have a strong interest in research, and the team is currently participating in four observational studies for RA (CATCH, OBRI, Role of Ultrasound in RA Remission, and Use of Radiosynovectomy)<br>— Newmarket is the largest contributor to CATCH and OBRI |

Sources: (a) Southlake Regional Health Center: About Southlake. Southlake Regional Health Center website. http://www.southlakeregional.org/Default.aspx?cid=5 Accessed 13 December 2019; (b) Newmarket - Population Population.City website http://population.city/canada/newmarket/Accessed 13 December 2019; (c) Southlake Regional Health Center: The Arthritis Program. Southlake Regional Health Center website. http://www.southlakeregional.org/Default.aspx?cid=488&lang=1 Accessed 13 December 2019; (d) Southlake Regional Health Center: Therapeutic Education Programs. Southlake Regional Health Center website. http://www.southlakeregional.org/Default.aspx?cid=1399&lang=1 Accessed 13 December 2019





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## Overview of Services

| Service Division | Southlake Regional Health Center | The Arthritis Program |
|---|---|---|
| Duration of consultations | Dependent on patient needs | 1 hour (initial consultation) |
| Hours of availability | 24/7 – 365 days | Monday – Friday (08:00 – 16:00)<br>TAP is also available at variable hours in the evenings and throughout the weekend, with 24/7 access to virtual educational programs |
| Capacity (no. of beds/rooms) | 426 beds | TAP outpatient site: 4x Exam Rooms; 1x Splint Room; 2x Classrooms 1x Team Room; 1x Admin Office |
| No. of patients seen | Up to 530,000 patients visits per year;<br>24,000 are inpatient admissions | ~10,000 patient visits a year, with ~3,000 patient referrals |
| Patient type catered to | All type of patients such as cardiac, arthritic, cancer etc. | All rheumatology patients with arthritis, autoimmune diseases, osteoporosis and other medical musculoskeletal problems, such as inflammatory arthritis, osteoporosis, osteoarthritis, juvenile arthritis and fibromyalgia |
| Services offered | — Lab facilities (blood tests)<br>— X-ray<br>— Ultrasound<br>— Imaging facilities, including 2x CAT scanners, 2x MRI scanners, 4x Nuclear, 2x Interventional<br>— Video conferencing facility for remote consultations | — Ultrasound<br>— Video conferencing facility for remote consultations and virtual education<br>— Lab and X-rays (reports and images) available online (ConnectOntario) |

Sources: (a) KPMG interviews; (b) Southlake Regional Health Center: About Southlake. Southlake Regional Health Center website. http://www.southlakeregional.org/Default.aspx?cid=5 Accessed 13 December 2019

# The team

## Core team profiles

- 6 rheumatologists
- 1 TAP manager
- 6 advanced clinician practitioners
- 2 physiotherapists
- 2 occupational therapists
- 1 kinesiologist
- 1.5 pharmacists

Core team members have gained additional skills:

- Physiotherapists and Occupational Therapists have advanced practice skills
- Pharmacists and kinesiologist have completed musculosekeletal skills program offered by TAS

## Key features of the care delivery team

### Early arthritis clinic

- Within TAP, there is an Early Arthritis Clinic to support early diagnosis of inflammatory arthritis in the patients, and initiate treatment with minimum delay
- Patients are seen by dedicated individuals with specialized skills in musculoskeletal and arthritis care (i.e. AHPs and rheumatologists) within two to four weeks of referral for assessment and diagnosis

### Network of allied healthcare professionals

- TAP is run by a team of dedicated individuals with specialized skills in musculoskeletal and arthritis care. Rheumatologists and other healthcare professionals (such as physiotherapists, occupational therapists etc) work together to support rapid diagnosis and treatment of RA and associated conditions

### Focus on patient education

- The team has a strong focus on educating patients and their families. They offer tailored therapeutic education programs for conditions such as osteoarthritis, inflammatory arthritis, osteoporosis, and chronic pain syndromes (including fibromyalgia)
- All programs include workshops with lectures on the disease, and exercises for self-management

## Affiliate team profiles

- 0.2 FTE social worker
- 0.2 FTE dietician
- 1.5 clerical staff

## Governance and processes

### Team meetings:

- Monthly management meetings between the lead rheumatologist, TAP manager and senior pharmacist (1 hour, planning for the future)
- Monthly team meeting (all of TAP team), focusing on implementation (1 hour)
- Annual meeting (review and plan for the year)

### Protocols:

- 2012 Canadian Recommendations for Management of RA by the Canadian Rheumatology Association (CRA)

### Patient records:

- Patient details are added to a record / chart during the first consultation based on the patient history form
- The center uses EMR (from Meditech) for sharing patient records

### Pharmacy:

- They assess medication tolerance and ensure appropriate education to prepare patients to self-manage their disease (see case study page 108)
- Medication reconciliation and adherence is addressed at each visit (see case study page 108)

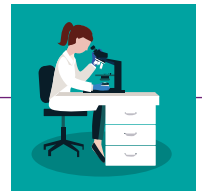
Sources: (a) KPMG interviews

# Overview of interventions in place for RA

Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis & Treatment initiation
In secondary care



## Treatment and Management
Medical management

**Interventions**

### The Arthritis Program – Interprofessional Training Program (TAP-ITP) (see case study page 106)

- Aimed at enhancing the knowledge, skills and attitudes of inter-professional care
- The training program curriculum is made up of four separate modules that can be taught as individual sessions or all together in a combined fashion, either in classrooms and/or online
- Focused on assisting and facilitating teams to recognize and explore opportunities for improved collaboration and evolution of their model of care

### Therapeutic education programs (see case study page 108)

- Education programs are available for the patients and their families to increase understanding and self management of these conditions
- Specific programs are offered to size patient populations, which include Inflammatory Arthritis, Osteoarthritis, Juvenile Arthritis, Osteoporosis, Fibromyalgia, and Pre-surgical Hip and Knee Arthroplasty

### Partnership with patient groups

- Collaborates with the Canadian Arthritis Patient Alliance (CAPA) for feedback and opportunity to participate in research ideas. TAP has been a part of many research grants

### Patient advisory council

- TAP has a Patient and Family Advisory Council. This council gives patient perspective on new initiatives that arise. The council meets on a monthly basis and provides feedback on the clinic pathways and consultation time. A recent topic of discussion was the use of medicinal cannabis

### Early arthritis clinic (EAC) (see case study page 110)

- TAP has an EAC clinic aimed at reducing delays in diagnosis and treating of RA
- Patients who have a suspicion of inflammatory arthritis are seen by an AHP for an initial consultation. The patient is subsequently assessed by the AHP and rheumatologist and treatment may be initiated / recommendations may be made to the referring physician
- The center is a participant in the Canadian Early Arthritis Cohort Study (CATCH), which is following patients with newly onset arthritis to examine the course of their disease
- A recent publication from CATCH identified Southlake as having the shortest symptom duration to diagnosis, and shortest time to first medication amongst CATCH sites

### Triaging

- Community rheumatologists are able to refer patients
- Referrals received from GPs are triaged daily. Referrals are screened for urgency and most urgent ones are prioritized for appointments. For instance, patients with inflammatory suspicion are seen within two to four weeks

### Patient information form

- First-time patients are seen for a comprehensive initial assessment covering details such as past medical history, current symptoms, extra articular features and functional status
- During first interaction with an AHP, a musculoskeletal examination form is completed to determine swollen, tender joints, any visible structural changes, and range of motion
- Current co-morbidities and medications are identified and a medication reconciliation form is initiated

### Team based approach

- The team is comprised of a number of different rheumatologists and AHPs, such as a pharmacist, occupational therapist, physiotherapist and kinesiologist
- The patient's first consultation is usually with an AHP who has been trained to perform initial assessments
- If the patient is systemically unwell or significantly impacted, consultation can be arranged for the same day
- Once the diagnosis is made, patients are counselled by the rheumatologist and pharmacist to find the most appropriate treatment for them
- Further, AHPs also provide individualized patient education and treatment on discipline specific activities where appropriate (e.g., the physiotherapist may provide musculoskeletal activities for the patient's recovery)

### Data-driven decision making

- The center focuses on consistently collecting and reviewing a number of objective and patient report outcome measures throughout the patient journey such as morning stiffness, grip strength, pain, fatigue
- The outcomes are uploaded onto the center's electronic health records, which can be accessed by the entire team
- The data allows the AHPs to monitor treatment progress and alter medication accordingly

### Total Joint Solutions – Rapid Assessment Clinic (TJS-RAC)[(b)]

- The clinic was established to create shorter waiting times for joint replacement assessment and to provide patients with resources to support their care journey, as mandated by the Ontario MofH and in support of Orthopedics (consistent with 'Portal of Care)





Sources: (a) KPMG interviews; (b) Southlake Regional Health Center: Total Joint Solutions – Rapid Assessment Clinic (TJS-RAC). Southlake Regional Health Center website. http://www.southlakeregional.org/Default.aspx?cid=4221&lang=1 Accessed 18 December 2019;

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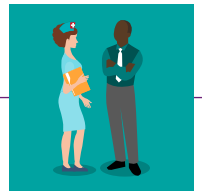
## Treatment and Management
### Non-medical management



### Close proximity of the HCPs: (see case study page 110)

— All HCPs, including rheumatologists and pharmacists work together in the same location and patients can rotate from one HCP to the next. They are also trained in rheumatology which means that they assess the patients are provide them with an adequate care and detailed education

### Physiotherapy and occupational therapy

— 2 physiotherapists and 2 occupational therapists are available at TAP for patients (following referral by a physician)

— If not available, the patient can be seen by another member of the team

— In addition to triage and assessment, they provide services that help improve functional independence and strategies that try to minimize pain

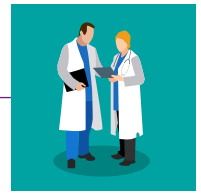
### Stress management workshops

— Multiple educational workshops are offered which can focus on specific disabilities and pain for patients and their families to better manage the condition

### Social worker support

— A social worker at the center helps individuals, families, and groups of people to cope with problems they are facing

## Medical care & Follow-up
### Monitoring of chronic disease/flare up



### Follow-up appointment

— The rheumatologist and AHPs determine the follow-up appointment time and frequency

— All AHPs are trained for follow-up consultations

— Rheumatologist may refer patients to specialists in the wider hospital as required in regular monitoring/follow-up process (for assessment of comorbidities)

— Patients are encouraged to access TAP as their 'portal of musculoskeletal care' for any concerns including flares, increasing symptoms and medication intolerance

### Use of patient reported outcome measures (PROs)

— A variety of objective and patient reported outcome measures are A variety of objective and patient reported outcome measures are collected at every patient visit to monitor disease activity

— The measures used Visual Analogue Scale (VAS) and Bath Ankylosing Spondylitis Disease Activity Index (BASDAI)

— These measures are shared with the referring physician / family doctor, as well as the patient

### RA research studies

— The center is focused on conducting research and participating clinical trails. The research questions currently regard a Patient Preference tool, Marijuana uptake, XRT and the use of Ultrasound

— There are four RA specific observational studies being currently conducted at the center: CATCH, OBRI, SPARCC and CSRG

### Remote rheumatologist consultation

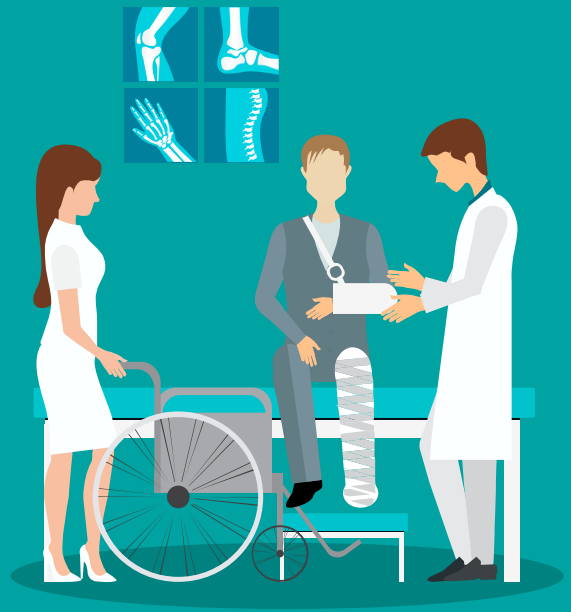
— The center has established a consultation process for remote patients in Kenora (Northwestern Ontario) and Sudbury (Northern Ontario). This enables patients to receive care closer to home

— For these consultation, an AHP who is based in the area is physically present with the patient during the consultation. The rheumatologist dials in (via video teleconference) to conduct the consultation virtually. The AHP will support physical diagnostic procedures as required



Sources: (a) KPMG interviews

# These interventions have improved outcomes



"In TAP patient receives an individualized assessment within 2-4 weeks"

– Rheumatologist

## How do you quantify the benefits in RA?

### Objective measures (KPIs):

— Disease symptoms and co-medications are reviewed at each visit, with inclusion of physical exam and measures such as: grip strength and tender / swollen joints

### PROs:

— **Visual Analog Scale (VAS):** An index to measure pain associated with the diseases, covering pain and fatigue[(a)]

— **Bath Ankylosing Spondylitis Disease Activity Index (BASDAI):** It's a scale to measure joint pain, stiffness, physical discomfort, fatigue etc. for assessment of arthritic treatments[(b)]

— **Health Assessment Questionnaire (HAQ):** A self-reported measure of functional impairment based on five patient-centered dimensions[(c)]

— **Patient Acceptable Symptom State (PASS):** An absolute threshold proposed to determine the point beyond which patients consider themselves well and, as such, are satisfied with treatment[(d)]

— **Clinical Disease Activity Index (CDAI):** A composite index for assessing disease activity based on the simple summation of the count of swollen/tender joint count of 28 joints along with patient and physician global assessment on Visual Analogue Scale (0–10 cm)[(e)]

### Research PROs

— TAP incorporates the identified key outcomes from their research experience into daily practice. Other outcomes as dictated by Study protocol are also collected, as required

## How have these interventions improved patient outcomes?

### RA

— By consistently measuring key outcomes, this can be translated into better clinical studies and clinical care

— Time until first DMARD has been minimized

— Patients able to have a 'medication-free' remission have been identified

— Potential for improved quality of care and treatment outcomes through better self-management of the condition

Sources: (a) Downie WW, et al. Studies with pain rating scales. Ann Rheum Dis. 1978;37(4):378-81 (b) Marina N. et al. Clinical Assessment of Axial Spondyloarthritis. Axial Spondyloarthritis, 2019. website https://www.sciencedirect.com/topics/medicine-and-dentistry/basdai Accessed on 18 December 2019 (c) Bruce B, et al. The Health Assessment Questionnaire (HAQ). Clin Exp Rheumatol. 2005;23(5 Suppl 39):S14-8 (d) Dougados M, et al. Evaluation of the Patient Acceptable Symptom State in a pooled analysis of two multicentre, randomised, double-blind, placebo-controlled studies evaluating lumiracoxib and celecoxib in patients with osteoarthritis. Arthritis Research & Therapy. (:R11 (e) van Gestel AM, et al. Validation of rheumatoid arthritis improvement criteria that include simplified joint counts. Arthritis Rheum. 1998; 41(10):1845-50

# How can care be improved?

## What is next for the center? (cont.)

### Overview: Aim to be best in class by providing best practice care

— **Why?** Providing best practice for patients can improve PROs and patient satisfaction

— **How?** The TAP team aims to continue developing and refining education materials for AHPs and patients. All educational sessions are now being developed into virtual care and some e-modules. Additionally, the team is focusing on adaptability of model-offerings, using alternate spaces, accessing grants to fund use of technology and cross training of team members

### Overview: Embedding research into care

— **Why?** To help offer more advanced treatment solutions to patients to provide them with a better quality of life

— **How?** The center has strong focus on research and is currently conducting four observational studies related to rheumatoid arthritis

### Overview: Economic analysis of TAP

— **Why?** To assess the economic value for the model

— **How?** A study is being conducted by Invx at the University of Calgary, of which is being supported by grants from the Canadian Institutes of Health Research and the Canadian Rheumatology Association. The study consists of measuring the KPIs and PROs collected at the center, as well as CATCH data, and analysing the impact or improvement in the values through this model

## What advice would you give less specialized centers?

### Overview of advice: Invest time to develop a shared model

— **Why?** Multidisciplinary care model has proved effective in delivering comprehensive care to the patients and improve the quality of their life

— **How?** Rheumatologists could contact potential collaborators and assess whether they have similar objectives and goals regarding the treatment of RA and RA comorbidities. With common objectives in mind, the specialists can define how they plan to work together, including roles, communication, meetings, etc.

### Overview of advice: Raise initial funding for the setting up a dedicated team of HCPs

— **Why?** Setting up a dedicated team of specialists utilizing advanced techniques to provide early diagnosis and treatment to all patients including remote locations requires high initial investment

— **How?** Centers can collaborate with arthritis organizations, patient organizations in the regions to partner and raise funds and awareness about the conditions

Sources: (a) KPMG interviews

# Case studies

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| Case study name | Page |
|---|---|
| Enhanced role of allied healthcare professionals | 106 |
| Extensive education programs | 108 |
| Early Arthritis Clinic | 110 |
| Remote rheumatologist consultation | 111 |

# Enhanced role of allied healthcare professionals

## Overview

— TAP focusses on training AHPs and promoting inter-professional collaboration to enhance the quality of care for patients. The AHPs may also undertake additional training to become advanced clinical practitioners

— The team includes occupational therapists, physiotherapists, pharmacist, kinesiologist, social worker and dietician

## What is the rationale?

— There is a higher prevalence of disabilities and related risk factors among patients with RA or other rheumatic conditions, which can result in a substantial individual and societal burden[a]

— Many of these conditions are associated with comorbidities such as severe pain and physical disabilities[a][b]

— Limited access to appropriate care and poor availability of healthcare professionals are primary contributors to the economic burden of arthritis[c]

## What are the key features of the intervention?

— TAP offers patient centric care model emphasising on the importance of inter-professional teamwork[d]

— The model aims to provide patients with effective care using best-practice standards and guidelines and effective use of resources[d]

- There is a strong focus on interprofessional collaboration – HCPs (including physicians) understand and trust the capabilities of all team members, enabling them to share skills and responsibilities[d]

— Patients undergo detailed initial history assessment to decide if they require rheumatologist consultation along with formalized education and comprehensive care programs to improve self-management[d]

## What are the activities undertaken?

### Day-to-day operations:

— TAP delivers care to patients through a team of allied health professionals who have undertaken training in house and externally

— In addition to rheumatologist and advanced clinical practitioner assessments, patients are also seen by the allied health professionals for additional support, including:

- **Occupational therapists**: Identify activities that are difficult to perform and help patients receive the skills needed for day-to-day activities
- **Physiotherapists**: Provide services that help improve mobility, relieve pain and limit permanent physical disabilities in patients
- **Pharmacist**: Assess medication tolerance and provide treatment advice to prepare patients to self-manage their disease. They also identify medication issues requiring intervention, perform medication reviews and provide medical education[e]
- **Dietitian**: Assess patient's nutritional needs and plan nutrition programs to promote healthy lifestyle

References: (a) Deslauriers S, Roy JS, Bernatsky S, et al. Factors associated with waiting times for persons with rheumatic conditions in multidisciplinary pain treatment facilities. J Pain Res. 2019;12:2379–2390. Published 2019 Jul 30. doi:10.2147/JPR.S206519; (b) Dougados M, Soubrier M, Antunez A, et al. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). Ann Rheum Dis. 2014 Jan;73(1):62-8. doi: 10.1136/annrheumdis-2013-204223. Epub 2013 Oct 4; (c) Bain, Lorna & Mierdel, Sandra & Thorne, Carter. (2012). Modeling best practices in chronic disease management: the Arthritis Program at Southlake Regional Health Centre. Journal of allied health. 41. e83-7; (d) Raven M, Brown L, Bywood P (2014). Allied health integration: Collaborative care for arthritis and other musculoskeletal conditions. PHCRIS Policy Issue Review. Adelaide: Primary Health Care Research & Information Service; (e) Craig M. Practice Spotlight: Marie Craig and The Arthritis Program (TAP) at Southlake Regional Health Centre. Can J Hosp Pharm. 2009;62(2):148–149. doi:10.4212/cjhp.v62i2.444; (f) KPMG Interviews





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## What are the activities undertaken? (cont.)

- **Kinesiologist**: Analyze patients body movement to cure muscle ailments through various healing techniques. They help to improve the efficiency and performance of the patients
- **Social worker:** Help individuals, families, and groups of people to cope with problems they are facing to improve their lives

### In addition to day-to-day operations:

- The Arthritis Program – Inter-professional Training Program (TAP-ITP)
  - It aims to enhance the knowledge, skills and attitudes of inter-professional care
  - The training program curriculum is made up of four separate modules that can be taught as individual sessions or all together in a combined fashion, either in classrooms and/or online

## Benefits

### Benefits to patients:

- Specialized management of RA comorbidities through inter-professional teams
- Early diagnosis and treatment strategies can help patients achieve remission sooner
- Reduced waiting time for patients to receive an in-person assessment
- Patients are empowered to become active team members and are part of the decision making in care

### Benefits to HCPs:

- Potential for improved quality of care and treatment outcomes for patients with early RA
- Increased engagement of HCP in the holistic care of the patient. In turn, this increases accountability and acknowledges contribution to the success of individual patients and TAP as a whole
- Reduced RA related hospitalizations driven by faster diagnosis and high quality outpatient care
- Structured resolution to issues related to clarifying scope of practice, removing professional silos and defining time & labor commitment

## Tips to replicate this intervention

- Ensure regular meeting schedule to increase team connect and build trust

> AHPs are trained for initial and follow-up consultations in order to expand capacity of service and enhance care
>
> - Rheumatologist

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# Extensive education programs

## Overview

— TAP offers therapeutic education sessions[a] for patients and their families to better understand and manage their condition. Patients begin to participate within a month of starting treatment at the center

— Sessions are focused on various topics such as education on the disease itself, stress management, exercises to improve physical functions

## What is the rationale?

— RA is a progressive deteriorating condition, associated with functional decline, increased pain, fatigue and stress[b]

— If co-morbid conditions are diagnosed early, properly treated, and managed, their negative impact on the course of inflammatory rheumatic disease (e.g., RA) may be significantly reduced[c]

## What are the key features of the intervention?

— The center ultimately aims to reduce time from symptom onset to diagnosis and time to first DMARD, in order to optimize likelihood of remission

— This is achieved through enrolling patients in education sessions within a month of initiating treatment, to thereby improve adherence, patient understanding and trust

— Topics include stress management, action for life-exercise, mindfulness and hydrotherapy

— The sessions can be broadcasted to remote areas via a regional telemedicine network

— A workbook is also provided to the patients (with tools/tips to manage their arthritis), which has chapters on:

- Introduction to TAP
- Key learning and medications for the condition
- Healthy eating and weight management
- Preparing for clinic

## What are the activities undertaken?

Center runs five therapeutic education programs for arthritic conditions, which are[d]:

### Inflammatory Arthritis

— A four week program (including four classroom sessions and e-learning modules) aimed at supporting self-management and remission of RA symptoms. The program focuses on:

- Introducing inflammatory arthritis
- Managing medications
- Creating an action plan
- Lifestyle management (e.g., exercise and other factors)

— Patients also receive regular assessments through pharmacist, physical therapist and occupational therapist

### Osteoarthritis (OA)

— A six week program is offered to OA patients

— The program is delivered through classroom sessions that discuss:

- What osteoarthritis is
- Importance of pain management, exercise, healthy eating, lifestyle management
- The safe use of medications and natural health products

— Personal goal setting is encouraged as an integral part of the self-management

### Juvenile Arthritis

— The program is designed for children below the age of 18 years, and it includes exercises in a therapeutic pool along with fun educational activities

References: (a) World Health Organization Regional Office for Europe Copenhagen. Therapeutic Patient Education. 1998 (b) Vermaak, V., Briffa, N.K., Langlands, B. et al. Evaluation of a disease specific rheumatoid arthritis self-management education program, a single group repeated measures study. BMC Musculoskelet Disord 16, 214 (2015) doi:10.1186/s12891-015-0663-6; (c) Filipowicz-Sosnowska A Comorbidities and multimorbidity in rheumatic diseases. Reumatologia. 2019; 57(1): 1–2. Published online 2019 Feb 28. doi: 10.5114/reum.2019.83232; (d) Southlake Regional Health Center: Therapeutic Education Programs. Southlake Regional Health Center website. http://www.southlakeregional.org/Default.aspx?cid=1399&lang=1 Accessed 13 December 2019

## What are the activities undertaken? (cont.)

### Juvenile Arthritis (cont.)

— TAP works in liaison with the Hospital for Sick Children, Holland Bloorview Kids Rehabilitation Hospital, local pediatricians, community agencies and schools to ensure that arthritic children can excel in their everyday activities

### Osteoporosis

— Educational workshop for individuals with osteoporosis and/or increased risk for fragility fracture, with aim to increase their knowledge of bone health and to reduce the risk of bone fractures

— Workshops are designed to teach individuals how to maximize their function through exercise (such as back/neck care, core strengthening), diet, lifestyle changes and medication

### Fibromyalgia (FM)

— Interactive sessions are aimed at increasing patients knowledge about FM and assisting them minimize its impact on their quality of life

— Program covers medication options, exercise theory and techniques, lifestyle management, as well as problem solving skills to attain empowerment, self-management and increased emotional well-being

## Benefits

### Benefits to patients:

— Improved self management of the condition, which is expected to improve their quality of life

— Potential for improved patient outcomes following shared decision making by specialists

### Benefits to HCPs:

— Potential for improved quality of care and treatment outcomes for patients with better self managed RA

## Challenges

— Patients may occasionally be unable to attend a session within the programs

— The community has a mixed understanding of these conditions, and many people still continue to take medications only when they have a flare

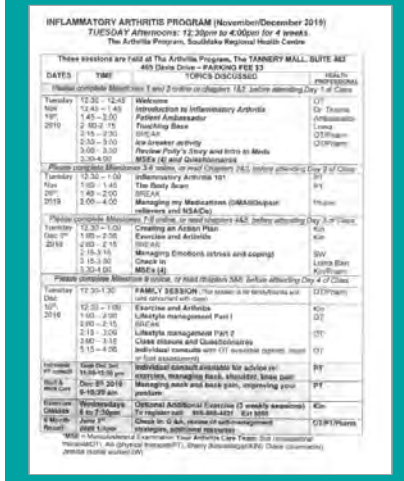
— Ongoing funding certainty in a continually changing health care setting can be a barrier

References: (a) Southlake Regional Health Center: Therapeutic Education Programs. Southlake Regional Health Center website. http://www.southlakeregional.org/Default.aspx?cid=1399&lang=1 Accessed 13 December 2019



> Five education programs are delivered in a group format which focus on improving patient behavior and self-management
>
> - Rheumatologist

## Inflammatory arthritis program schedule



INFLAMMATORY ARTHRITIS PROGRAM (November/December 2019)
TUESDAY Afternoons: 12:30pm to 4:00pm for 4 weeks.
The Arthritis Program, Southlake Regional Health Centre

Three sessions are held at The Arthritis Program, The TANNERY MALL, SUITE 363 465 Davis Drive – PARKING FEE $3

| DATES | TIME | TOPICS DISCUSSED | HEALTH PROFESSIONAL |
|---|---|---|---|
| Tuesday Nov 19th, 26th, Dec 3rd, 2019 | 12:30 – 12:45 | Welcome | OT |
| | 12:45 – 1:45 | Introduction to Inflammatory Arthritis | Dr. Trauma |
| | 1:45 – 3:00 | Patient Ambassador | Ambassador |
| | 2:00 – 2:15 | Trust/Mag Base | Lorna |
| | 2:15 – 2:30 | BREAK | OT/Pharm |
| | 2:30 – 3:00 | Ice-breaker activity | OT/Pharm |
| | 3:00 – 3:30 | Review Polly's Story and Intro to Meds | |
| | 3:30-4:00 | MSKs (4) and Questionnaires | |
| Please complete Milestone 3-6 online, or read chapters 2&3 before attending Day 2 of Class | | | |
| Tuesday Nov 26th, Dec 3rd, 2019 | 12:30 – 1:00 | Inflammatory Arthritis 101 | RH |
| | 1:00 – 1:45 | The Rocky Road | RH |
| | 1:45 – 2:00 | BREAK | |
| | 2:00 – 4:00 | Managing my Medications (DMARDs/pain relievers and NSAIDs) | Pharm |
| Please complete Milestone 7-9 online, or read chapters 4&5 before attending Day 3 of Class | | | |
| Tuesday Dec 3rd, 2019 | 12:30 – 1:00 | Creating an Action Plan | Kim |
| | 1:00 – 2:00 | Exercise and Arthritis | Kim |
| | 2:00 – 2:15 | BREAK | |
| | 2:15-3:15 | Managing Emotions (stress and coping) | SW |
| | 3:15-3:30 | Check in | Liana Ellen |
| | 3:30-4:00 | MSKs (4) | Kim/Pharm |
| Please complete Milestone 8 online, or read chapters 5&6 before attending Day 4 of Class | | | |
| Tuesday Dec 10th, 2019 | 12:30-1:30 | FAMILY SESSION (The session is for family/friends and care providers only) | OT/Pharm |
| | 12:30 – 1:00 | Exercise and Arthritis | Kim |
| | 1:00 – 2:00 | Lifestyle management Part I | DT |
| | 2:00 – 2:15 | BREAK | |
| | 2:15 – 3:00 | Lifestyle management Part 2 | OT |
| | 3:00 – 3:15 | Class closure and Questionnaire | |
| | 3:15 – 4:00 | individual consults with OT (optional session, must be face to face assessment) | OT |
| Individual PT consult | Date Dec 3rd 11:00-11:30 pm | Individual consult available for advice on exercises, managing back, shoulder, knee pain | PT |
| Neck & Back Care | Dec 5th 2019 9-10:30 am | Managing neck and back pain, improving your posture | PT |
| Exercise Classes | Wednesdays 6 to 7:30pm | Optional Additional Exercise (3 weekly sessions) To register call 905-865-4321 Ext 5555 | Kim |
| 6 Month Reset | June 3rd 2020 1:1pm | Check in: Q &A, review of self-management strategies, additional resources | OT/PT/Kim |

*Will = Musculoskeletal Examination Your Arthritis Care Team: Rick (rheumatologist) Ali (physical therapist/PT), Sherry (kinesiologist/KIN) Diane (pharmacist) Jessica (nurse educator/JN)



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# Early Arthritis Clinic (EAC)

## Overview

- EAC focuses on diagnosing and treating RA at an early stage
- The clinic aims to conduct consultation with the rheumatologist within 2-4 weeks of referral
- To support national research on the early diagnosis of RA, the center is a participant in the Canadian Early Arthritis Cohort Study (CATCH)

KPMG

## What is the rationale?

- Rheumatoid arthritis (RA) is an inflammatory disease which can lead to joint destruction and disability in the absence of appropriate treatment[(a)]
- Identifying RA at an early stage can affect the course of the disease (e.g., preventing the development of joint erosions), whilst simultaneously increasing the likelihood of remission with simpler therapeutic strategies[(a)]

## What are the key features of the intervention?

- The EAC is focused on early diagnosis through efficient collaboration among AHPs and rheumatologists. Community rheumatologists are able to refer patients to the center for rapid assessment and diagnosis of RA
- To support national research on the early diagnosis of RA, the center is a participant in the Canadian Early Arthritis Cohort Study (CATCH)

### CATCH

- CATCH is a Canadian multicenter research study which began in 2007 with the aim to improve the quality of care for people with early inflammatory arthritis[(b)]
- The study is the only nation-wide early arthritis cohort study that follows people with new onset inflammatory or rheumatoid arthritis over a long period of time, in order to examine the course of their disease and their responses to treatment[(b)]
- CATCH has more than 3,000 participants with ~350-400 additional participants joining each year(b). Of this, TAP has enrolled around 600 participants, with over 500 under observation (some for as long as 13years)[(c)]

## What are the activities undertaken?

- Physicians are able to refer patients with a suspected diagnosis of inflammatory arthritis for assessment through the EAC
- Referral forms are triaged by the rheumatologist within 24 hours
- Patients are asked to complete an initial history form, providing data about physical symptoms, functional impact and other concerns
- Patients are seen twice in EAC. The first consultation is with AHP and the second one is with both AHP and the Rheumatologist
- The first consultation is usually for an hour, where initial examination form is filled by the AHP and it may involve some blood tests / x-ray
- The second appointment usually occurs within two weeks of the referral (it's a 2-4 week wait time) and is aimed at confirming the diagnosis
- If the patient is identified as very active, they will be seen urgently within 1 – 2 days

## Benefits

### Benefits to patients:

- Early diagnosis and treatment strategies can help patients delay disease progression and maintain better quality of life
- Patients have also identified that early medication counselling by the physician and pharmacist can be a key factor in developing trust and confidence in the team[(c)]

### Benefits to HCPs:

- Potential for improved quality of care and treatment outcomes for patients with early RA diagnosis and treatment





References: (a) (a) Heidari B. Rheumatoid Arthritis: Early diagnosis and treatment outcomes. Caspian J Intern Med. 2011 Winter; 2(1): 161–170; (b) About Us. Canadian Early Arthritis Cohort (CATCH) website. http://www.earlyarthritis.ca/about.php Accessed 18 November 2019

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# Remote rheumatologist consultation

## Overview

— The center treats patients suffering from arthritis with no / limited access to healthcare facilities through video consultations

## What is the rationale?

— There is limited access to diagnostic facilities & therapies and poor availabilities of healthcare professionals for people living in remote areas[(a)(b)]

— Long travel time to appointments and waiting times between appointments can lead to poor adherence among patients[(a)(b)]

— Shortage of rheumatologists has lead to delay in timely treatment of patients[(b)]

## What are the activities undertaken?

— Rheumatologists from the center established a video or telephone connection with the patient

— Patients are consulted through interactive remote consultation using an online two-way video conferencing[(a)]

— An AHP is physically present with the patient during consultations. The AHP completes an in person physical exam on behalf of the rheumatologist as required[(c)]

## What are the key features of the intervention?

— The center has established a consultation process (through technology) for remote patients, enabling patients to receive care closer to home

— The initiative was been set up in collaboration with The Arthritis Society, Canada's primary not-for-profit organization dedicated to providing and promoting arthritis education

— The service was set up in Kenora and Sudbury with poor / no availability of specialized rheumatologists[(c)]

— The regional based allied health professionals visit the center once a year for inter-validation of assessment techniques with the team

## Benefits

**Benefits to patients:**

— Increased access to care in remote locations has helped many patients with timely treatment

## Challenges[(d)]

— High initial set up cost of remote consultation equipment

— Consistent internet connection could be a challenge in remote / rural areas

— Monitoring and follow-ups post treatment of patients located in remote locations is not always feasible

References: (a) Introduction into Telemedicine for Rheumatology, NRAS Magazine, 2010; (b) The Virtual Doctor is In: Advancing Care Through Tele-Rheumatology, Healio Rheumatology, September 2018 (c) KPMG interviews (d) McDougall, J. A., Ferucci, E. D., Glover, J., & Fraenkel, L. (2017). Telerheumatology: A Systematic Review. Arthritis care & research, 69(10), 1546–1557. doi:10.1002/acr.23153





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KPMG

# Geisinger

**Danville, Pennsylvania**

August 2019

**kpmg.com/uk**

# Summary

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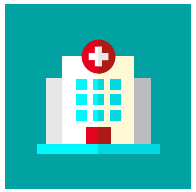

## Context

### The center

— Geisinger serves more than 1.5 million patients in Pennsylvania and New Jersey. The system includes 13 hospital campuses, two research centers and the Geisinger Commonwealth School of Medicine

— Geisinger has a long-standing commitment to patient care, medical education, research and community service. The teams at Geisinger are committed to developing new tools and innovations to improve the patient experience

### Integrated delivery system

— Geisinger operates as an integrated delivery system which represents a healthcare ecosystem. This connects administrators, payers, and providers to optimize the patient experience

### Shared expertise

— All team members share the responsibility of patient care. This is done through formal monthly meetings as well as through the use of innovative techniques. One such innovation is the Ask-a-Doc software which enables practitioners to receive specialist advice whilst incentivising specialists to provide colleagues their guidance

## Key strengths in the delivery of RA care

### Early diagnosis

— The center encourages their network of primary care physicians to refer as soon as joint inflammation is noted so that specialist input is received from the first sign

### Homogenisation of care and "levelling-up" of best practice

— The rheumatologists rely on video conference (VC) every week between the three centers to discuss cases. Other implementations include the physician leader board as seen in PACER (see case study on pages 132)

### Synchronisation of people, process, and information technology

— Geisinger combines these in new and novel ways, in order to streamline patient interactions and minimize pain points along the patient journey (see case study page 129)

### Medical care

— Treat-to-target methodology is implemented[1]

— The center assists patients in accessing affordable treatment by looking into co-pay support, prescribing drugs that are likely to be approved by insurers and promoting appropriate de-escalation through AI predictive algorithms (see case study page 132)

## Key challenges faced in delivery of RA care

### Co-ordination of care

— With 40% of patients referred from outside the Geisinger Integrated Health System this means their health records are not available automatically

### Psychosocial impacts of disease

— Rheumatologists at the center recognize that RA can cause patients significant psychosocial distress

### Access to care

— Providing quality care to patients with limited funding is a challenge

### Patient access

— Geisinger receive referrals from a wide geographical distribution. This can mean patients are required to drive ~ 1 hour at a time to attend appointments[2]. Geisinger has introduced a form of patient transport service, but transport can still be difficult for those without access to a car

References: (a) American College of Rheumatology (ACR). New model for treating rheumatoid arthritis patients improves quality of care, reduces costs, ScienceDaily. 16 November 2014 (b) KPMG interviews with Geisinger HCPs

# RA in the US: Healthcare system overview

**RA challenges in the Canadian healthcare system:**

- It is estimated that there will be a significant shortage of rheumatologists in the US by 2030. In 2015, the demand exceeded the supply of clinical providers by 700 (12.9%). This imbalance is expected to grow to a deficit of 4,133 providers (102%) by 2030[a]
- On an average, the lag time between a patient first experiencing symptoms and being referred to a rheumatologist is over 5 months in the US[b]
- Measurement of quality has been noted by the American College of Rheumatology to be essential to the care of patients with rheumatic disease. The abundance of quality measures can cause measurement fatigue and a discrepancy between consistency of measures routinely used in clinics[c]

## US healthcare system overview:

### Publically funded healthcare:

- Government spending on healthcare accounted for 81.8% of total health spending in 2016. The main channels of public spending are Medicare1, Affordable Care Act (ACA)2 subsidies and Medicaid3[d]
- Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older. Medicaid is a health coverage program for Americans with low income and resources. The Affordable Care Act (ACA), is a US law aimed at increasing access to affordable health insurance for Americans
- According to the Centers for Medicare & Medicaid Services (CMS), Medicare spending is likely to grow at an average rate of 7.4% during 2017-27, while spending on Medicaid and private prepaid plans will average 5.5% and 4.8%respectively[d]
- The ACA expanded Medicaid to make policies affordable, by extending the fund to subsidies nearly all low-income individuals with incomes at or below 138% of the poverty level[d]

### Privately funded healthcare

- Approximately 69.3% of Americans aged under 65 had private health cover in 2017[d]
- Those without employer policies buy their own insurance, many through ACA
- A major concern is the rapid increase in deductibles on health insurance. Deductibles on employer-based health plans almost quadrupled during 2007-19, to an average of US$1,350 per person[d]
- The five biggest commercial health insurers are UnitedHealth, Anthem, Aetna, Cigna and Humana, together representing about 43% of the total insured US population[d]

## Rheumatoid Arthritis in the US:

### Patients:

- Prevalence: 0.6%[e]
- Women are about two to three times more likely to develop RA than men[f]

### Physicians:

- There are 6,013 providers in the US adult rheumatology workforce, representing a corresponding clinical FTE of 5,415[a]. This includes physicians, nurse practitioners (NPs), and physician assistants (PAs). 4,997 of these 5,415 FTE are rheumatologists, 190 PAs and 228 NPs

### Guidelines:

- RA: 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis

### Patient advocacy groups (PAGs)/Medical societies

- American College of Rheumatology (ACR)
- Arthritis Foundation
- Rheumatoid Arthritis Foundation

**Notes**: (1) Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older (2) The Affordable Care Act (ACA), commonly known as Obamacare, is a US law aimed at increasing access to affordable health insurance for Americans (3) Medicaid is a health coverage program for Americans with low income and resources which is jointly funded by the federal government and the states

**References**: (a) Battafarano, DF. et al. 2015 American College of Rheumatology Workforce Study: Supply and Demand Projections of Adult Rheumatology Workforce, 2015–2030. *Arthritis Care Res*, 70:617-626. doi:10.1002/acr.23518; (b) Barhamain AS, et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms. *Open Access Rheumatol.* 2017;28(9):139-150 doi: 10.2147/OARRR.S138830 (c) Newman ED, et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, *Arthritis Care Res (Hoboken)*. 2015;67(4):546-53 doi: 10.1002/acr.22479; (d) The Economist Intelligence Unit Healthcare Industry Report 2nd Quarter 2019; (e) Iqbal S, et al. Review of Rheumatoid Arthritis. US Pharm. 2019;44(1)(Specialty&Oncology suppl):8-11; (f) Rheumatoid Arthritis by the Numbers: Facts, Statistics, and You. What is Rheumatoid Arthritis? [online] https://www.healthline.com/health/rheumatoid-arthritis/facts-statistics-infographic#4 Accessed: 2 September 2019

# The Rheumatology unit

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## Geisinger Center

| | | | |
|---|---|---|---|
| **Type** | — Geisinger (Geisinger) is a regional integrated health care provider and operates as an integrated delivery system. It represents a healthcare ecosystem. This connects administrators, payers, and providers to optimize the patient experience. | **Locations** | — Geisinger covers a large and rural area. It operates 190 clinics throughout north-eastern and western Pennsylvania with its primary care facility (Geisinger Medical Center) located in Danville |
| **Core services** | — Geisinger provides care to patients suffering from a wide range of chronic conditions such as cancer and other immunological diseases including RA | **Population geography** | — Patients attend from a wide catchment area spanning throughout Pennsylvania. Patients attend from Pittsburgh in the west, New York in the north, Philadelphia in the east and York in the south |
| **Size** | — Geisinger caters for over 3 million patients who mostly live in Pennsylvania(a) | **Demographics** | — Communities served by Geisinger include metropolitan, rural and suburban |

## The Rheumatology unit

| | | | |
|---|---|---|---|
| **Services** | — In total, Geisinger employs 18 consultant rheumatologists who work across three different sites and coordinate service delivery<br>— The Danville campus employs 7 rheumatologists and 4 fellows. The East campus employs 4 rheumatologists and the West campus employs 2 rheumatologists with 1 advanced nurse practitioner(b) | **Locations** | — In addition to the Danville main facility, rheumatology services are available across two further locations: Wilkes-Barre in the north-east and State College in the west<br>— Video conferencing (VC) between the 3 rheumatology centers occurs weekly for case discussions and best practice meetings occur once a month |
| **Funding and Resources** | — Insurance is the primary source of funding and Geisinger helps patients in identifying foundations which may be able to support their co-pay if needed | **PCP integration** | — Geisinger includes over 500 primary care physicians (PCP) who are encouraged by the rheumatology team to refer any patient with any joint swelling<br>— The rheumatologists will also review all patients within the Geisinger who have a RA diagnosis in their PCP record but who are not currently on a DMARD. This review allows the potential misdiagnosis of RA to be corrected and is an opportunity to educate PCPs |

**References**: (a) Geisinger. For media [online] https://www.geisinger.org/about-geisinger/news-and-media/for-media Accessed: 2 September 2019; (b) KPMG interviews with Geisinger HCPs

## Overview of Services

| Service Division | Outpatient service | Infusion service | Inpatient service |
|---|---|---|---|
| **Duration of stay** | Typically duration is 1– 1.5 hours<br>20 minutes for questionnaire and patient prep<br>30 minutes with the physician<br>10 minutes for check out, booking future appointments or conducting x-rays | Dependent on therapy being given<br>Each of the three centers has access to a day unit for intravenous infusions | Variable<br>Rheumatological patients are not commonly admitted as an inpatient due to their rheumatological disease. If they are admitted they will be admitted to the hospitalist department |
| **Hours of availability** | 07:30-16:30<br>1 extended clinic 07:00-18:00 | 07:00-18:30 | 24/7 |
| **Capacity (no. of beds/rooms)** | Provided across 3 centers | 11 at the main Danville site | Across the 3 sites delivering rheumatology services the total inpatient capacity is:<br>Danville: 560 beds<br>Wyoming Valley: 274 beds |
| **No. of patients seen** | 2,879 patients with RA across the 3 campuses per annum | 221 RA patients receiving IV infusion | |
| **Patient type catered to** | All rheumatology patients | Patients with moderate-severe rheumatology conditions | Patients with rheumatological flares requiring urgent investigation and hospitalisation or patients admitted for other conditions but who have comorbid rheumatological conditions |
| **Services offered** | — Full laboratory services, ultrasound, x-ray, ECG and doppler's (for suspected DVTs) available same day<br>— CT or MRI available but not on same day<br>— Rehabilitation<br>— Physical and Occupational therapy | — Biologics administration | — Blood tests<br>— Daily inpatient rheumatology review<br>— Rapid comorbidity review by specialist (e.g., cardiology review)<br>— Inpatient therapies services |

**References**: (a) KPMG interviews with Geisinger HCPs

# The team

## Core team profiles

- 17 rheumatologists
- 3 licenced practical nurses
- 1 clinical nurse specialist
- 1 nurse team leader
- 1 nurse service coordinator/navigator
- 4 rheumatology fellows
- 2 pharmacists

## Key features of the care delivery team

### Integrated health system

- Geisinger has an integrated healthcare system spanning a large geography. The integrated care system makes it easier to receive referrals from PCPs and allows for seamless communication of patient records and results

### Multidisciplinary working

- Geisinger has an extensive network of physicians, nurses and pharmacists in multiple disciplines. 37 different specialities are involved in Ask-a-Doc (see case study on page 135), a software in which a registered physician can ask a clinical question and a relevant specialist can reply

### Culture

- Geisinger rheumatology department work with their network of primary care physicians to enhance the patient service by encouraging early referral for suspected rheumatological investigation
- As the center serves a rural and wide population, the teams across the three centers use VC every week to discuss cases, and have monthly best practice meetings

## Affiliate team profiles

- cardiologist
- dermatologists
- Endocrinologist/diabetologist
- nephrologists
- neurologists
- ophthalmologist
- orthopaedic surgeons
- psychologist
- pulmonologist

## Governance and processes

### Team meetings:

- Weekly huddle
- Weekly VC between the 3 centers to discuss cases
- Monthly best practice meetings to plan quality improvement research, population management and new technologies
- Monthly floor meetings
- Monthly departmental business meetings

### Protocols:

- Follow 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis
- Agreed best practice protocols developed through physician consensus

### Patient records:

- EHR (Electronic Health Record) and PACER (see case study page 132)
- PACER aggregates information from the patient, the nurse, the rheumatologists and the EHR

### Pharmacy:

- There are 17 Geisinger networked pharmacies
- These include the 3 rheumatology sites of: Geisinger Medical Center (Geisinger Wyoming Valley), Geisinger Community Medical Center (GCMC) located in Scranton and Danville Medical Center
- The pharmacies accept most insurance plans. They fill prescriptions and sell over-the-counter medications

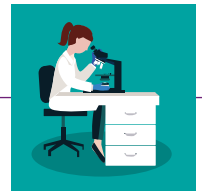
**References**: (a) KPMG interviews with Geisinger HCPs

# Overview of interventions in place for RA

Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis & Treatment initiation
In secondary care



## Treatment and Management
Medical management

Interventions

### Ask-a-Doc (see case study page 135) Direct communication between PCPs and rheumatologists

- Ask-a-Doc allows a PCP provider to ask questions to a field of specialists. Ask-a-doc was implemented in 2014[(a)] to help facilitate communication between primary care and specialty care to bridge gaps in patient care and avoid adverse patient outcomes[(b)]
- This rapid communication allows specialists to feedback to PCPs to positively impact the referrer's own learning

### Pre-appointment blood tests

- The PCP)or the rheumatologist may order blood tests prior to the patient's appointment. This enables the rheumatologists to have results available to make the diagnostic and treatment decisions with the patients in the clinic

### Early referral culture

- Rheumatologists at the center ask PCPs to refer patients to them as soon as they suspect any joint inflammation[(a)]. This means the center receives referrals that transpire not to be RA related however this also means they receive referrals early in the disease process

### Integrated healthcare system

- The integrated health system makes it convenient for rheumatologists to receive referrals from the PCPs within the Geisinger (Geisinger)
- Referrals sent by Geisinger PCPs allow the rheumatologists to see the patient's electronic record and access all their previous results

### PACER, PAtient Centered Electronic Redesign, (see case study page 132)

- PACER allows the doctor to have access to all of the most up-to-date patient information in one place
- It collects data from the patient's electronic health records, nursing chart observations, patient completed questionnaire and previous rheumatology entries
- The rheumatologist spends 2-3 minutes reviewing the PACER before seeing the patient in order to update themselves with the most prevalent information and avoid unnecessary and sometimes awkward duplication of questions, effectively empowering the clinic visit

### Designated physicians

- All patients have a designated physician. The patients will almost always see the designated physician unless they are away on leave
- Consultations last 60 minutes for new patients

### PACER (see case study page 132)

- PACER conveys the patient's joint pain and severity by highlighting joints on a patient diagram in different colours relating to the severity of the pain as indicated by the patient in their questionnaire

### AI algorithm (see case study page 132)

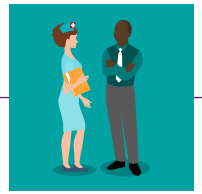
- The PACER AI algorithm takes in the information from the real time rheumatologist review and builds a recommendation for the physician. This may be to keep the same medications, to escalate or to de-escalate the treatment
- AI also recommends certain drugs to prescribe that are likely to be accepted by the patients insurance provider

### AIM FARTHER RA Dashboard (see case study page 136)

- Tableau®-based dashboard that tracks rheumatologist performance on a set of pre-agreed quality measures. This takes into account value-based care decisions against population demographics

**References**: (a) Newman ED, et al. Impact of Primary and Specialty Care Integration via Asynchronous Communication. *Am J Manag Care.* 2019;25(1):26-31; (b) Geisinger. News releases [online] https://www.geisinger.org/about-geisinger/news-and-media/news-releases/2019/03/20/19/53/ask-a-doc-improves-physician-communication-to-provide-more-effective-timely-patie Accessed on 2 September 2019; (c) KPMG interviews with Geisinger HCPs

## Treatment and Management
### Non-medical management



### Physiotherapy (PT) and occupational therapy (OT)

— Geisinger recognizes that the recent improvement in early initiation of disease modifying medications have significantly reduced the need for PT and OT involvement. Therefore patients do not require referral as often however their services are available if needed

### Nurse telephone visit (see case study page 134)

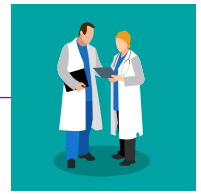
— A formalized virtual visit operated by a rheumatology nurse. This is usually conducted between appointments with the rheumatologist and this tends to be after around 3 months have passed since the last rheumatologist appointment.

— It allows both the center and the patient to keep open the lines of communication without unnecessary appointments

— This virtual appointment is free of charge and avoids the patient incurring a co-pay.

— These virtual consultations help patients avoid both unnecessary costs and hassle of travelling to the center

## Medical care & Follow-up
### Monitoring of chronic disease/flare up



### Medical referrals

— 40% of referrals are seen within 10 days

— Geisinger Rheumatology has a 6% no show rate and a 90+% fill rate for clinic appointments

### Consultation duration

— Consultations for follow up patients last 30 minutes

— The relative extensive appointment length (60 for new and 30 for follow up) helps increase the fill rate of appointments as the center found that patients prefer to attend either on the hour or half hour mark. The center also found that this reduced dead time due to a lower number of "no show" patients[a]

### Follow up frequency

— Patients who are in remission and do not have active flares are seen every 12 months (as patients prefer to be seen regularly so they are not lost to the system)

— For patients in remission, the physician will prescribe 3 months worth of medication with a repeat prescription to allow the patient to pick up enough for 1 year. The prescription is sent directly to the pharmacy of patient choice. Lab monitoring is performed as appropriate for the patient's specific medications

### Follow up appointment booking and reminders

— Follow up appointments are always booked as patients leave and can be booked as far forward as the following 12 months

— Patients are given hand-outs with the date and time of their follow up appointment

— If they prefer, automated text message, phone call or email reminders are also set up by the secretaries before the patient leaves the center

### Patient questionnaire (see case study page 130)

— On, or before arrival (through their patient portal), patients will complete a diagnosis agnostic questionnaire which covers social history updates, full review of systems, validated measures such as MDHAQ (Multidimensional Health Assessment Questionnaire)1 RAPID 3 (Routine Assessment Of Patient Index Data 3)2

— It also asks questions to monitor events that may have happened since the patient's last visit

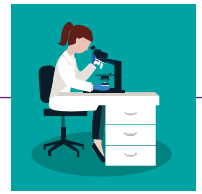
**Notes**: (1) MDHAQ (Multidimensional Health Assessment Questionnaire) is a two-page form used to assess patients with RA using a RAPID 3 index (index of the three RA core data set measures) (2) RAPID3 (Routine Assessment of Patient Index Data 3) is a pooled index of 3 patient-reported core RA measures (function, pain, and patient global estimate of status) which is used to assess and monitor patients with rheumatoid arthritis

# Overview of interventions in place for RA comorbidities

Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis
In secondary care



## Treatment and Management
Medical management

**Interventions**

### Minimising barriers to referral

— The rheumatologists encourage PCPs to refer any patient with any joint swelling

### Communication with PCPs

— Geisinger rheumatologists review all patients within their integrated care system who have a diagnosis of RA listed in their primary care record but who are not currently on a DMARD1

— The outcome of this review is to identify the mislabelling of RA and identify opportunities to both educate a PCPs and improve a patient's treatment plan by initiating DMARDS at an early stage

### Co-morbidity Care

— Geisinger PCPs have an IT driven system for care gap closure across a broad array of co-morbidities including cardiovascular disease, diabetes, COPD, depression as well as preventative health services

### RA patient admission auto – notifications (see case study page 129)

— The Geisinger rheumatology department has built an electronic auto-notification process that searches the Integrated Care System (ICS) for any admitted patients with RA across the Geisinger hospitals network and sends a notification to the appropriate rheumatologist in real time

— Patients with RA are predominantly admitted to hospital due to complications of their comorbidities rather than their RA itself

— Rheumatologists are then able to review the care plan of their patients and make any necessary medication recommendations to the admitting physicians

### Ask-a-Doc (see case study page 135) A direct communication channel between PCPs, rheumatologists and comorbidity specialists

— Electronic messaging software (Ask–a-doc) allows rapid direct communication between rheumatologists and PCPs within the Geisinger

— Ask-a-Doc allows a physician to ask questions to a field of specialists. Ask-a-doc was implemented in 2014[(a)] to help facilitate communication between primary care and specialty care to bridge gaps in patient care and avoid adverse patient outcomes[(b)] a The system is now used by PCPs and also specialists (such a rheumatologists) who want to ask questions to their specialist colleagues in different departments

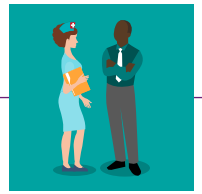
— As an example for patients with ILD (interstitial lung disease), rheumatologists can send an Ask-a-Doc to a specific pulmonology colleague

— This rapid communication allows specialists to feedback to positively impact the referrer's own learning

— The average turnaround time for an Ask-a-Doc request is 6.5 hours!

**References**: (a) Newman ED et al. Impact of Primary and Specialty Care Integration via Asynchronous Communication. *Am J Manag Care*. 2019;25(1):26-31; (b) Geisinger. News releases [online] https://www.geisinger.org/about-geisinger/news-and-media/news-releases/2019/03/20/19/53/ask-a-doc-improves-physician-communication-to-provide-more-effective-timely-patie Accessed on 2 September 2019 (c) KPMG interviews with Geisinger HCPs

## Treatment and Management
### Non-medical management



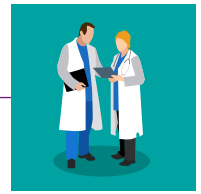
**Nurse-led education**

— Education is provided to patients and rheumatology nurses on lifestyle factors relating to CVD and diabetes and means of improving quality of life. The nurses will speak to the patient after they have been seen by the rheumatologists to provide relevant advice

**Pharmacist-led education**

— The recent addition of pharmacists has enhanced the education of patients around medication risks and benefits and expanded the care team to medication management and adherence

## Follow-up
### Monitoring of chronic disease/flare up



**Comorbidity identification Patient questionnaire (see case study page 130)**

— On, or before arrival (through their patient portal), patients will complete a diagnosis agnostic questionnaire which covers social history updates, full review of systems, validated measures such as MDHAQ (Multidimensional Health Assessment Questionnaire) RAPID 3 (Routine Assessment Of Patient Index Data 3)

— It also asks questions whether certain events have happened since the patient's last visit. e.g., "have you changed your medications since the last visit?"

**PACER, PAtient Centered Electronic Redesign, (see case study page 132)**

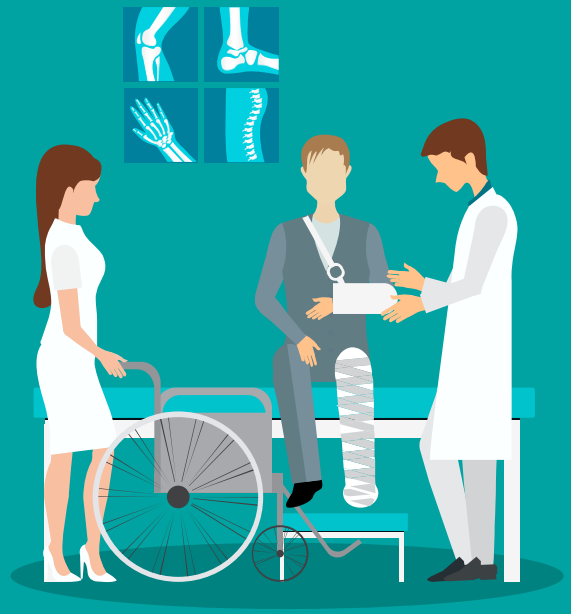
— The rheumatologists will review the PACER system (see case study page 132). This will pull information so the rheumatologists is aware about other specialty encounters

— PACER collects data from the patient's electronic health records, nursing chart, patient questionnaire and previous rheumatology encounters

— The doctor spends 2-3 minutes reviewing PACER before seeing the patient

**References**: (a) KPMG interviews with Geisinger HCPs

# These interventions have improved outcomes



> We are always trying to improve quality and decrease costs
>
> – Rheumatologist

## How do you quantify the benefits in RA?

**Objective (KPIs) used include 3 main validated measures**

**Disease activity:**

- **RAPID3 (routine assessment of patient index data 3):** a pooled index of the 3 patient-reported American College of Rheumatology RA Core Data Set measures: function, pain, and patient global estimate of status[(b)]
- **Clinical Disease Activity Index (CDAI):** a composite index for assessing disease activity based on the simple summation of the count of swollen/tender joint count of 28 joints along with patient and physician global assessment on Visual Analogue Scale (0–10 cm)[(c)]

**Functional status:**

- MDHAQ (Multidimensional Health Assessment Questionnaire)[(1)]

**Center routinely measures comorbidity outcomes by:**

- Patient questionnaire is completed either before arrival (via the portal) or in the center where a nurse can assists if required

## How have these interventions improved patient outcomes?

**RA**

- CDAI is completed in 95% of patients[(a)]
- By reliably closing care gaps using individual patient scorecards, the number of patients with RA achieving 100 percent of their applicable quality measures rose from 22 percent to 40 percent[(d)]
- Cost savings for patients due to biologics de-escalation feature (>$1 million in savings)[(e)]
- 69% of the 2,879 RA patients are now at low disease activity or remission[(a)]

**References**: (a) KPMG interviews with Geisinger HCPs; (b) Pincus T et al. RAPID3, an index to assess and monitor patients with rheumatoid arthritis, without formal joint counts: similar results to DAS28 and CDAI in clinical trials and clinical care. *Rheum Dis Clin North Am.* 2009; (c) van Gestel AM, et al. Validation of rheumatoid arthritis improvement criteria that include simplified joint counts. *Arthritis Rheum.* 1998; 41(10):1845-50; (d) American College of Rheumatology (ACR). "New model for treating rheumatoid arthritis patients improves quality of care, reduces costs." ScienceDaily, 16 November 2014; (e) Sharma TS, et al. Biologic De-Escalation in Rheumatoid Arthritis: Cost Savings and Clinical Success, *Arthiris Rheum* 2014;65(10)(Suppl): S941

# How can care be improved?

## What is next for the center?

**Overview: Development and implementation of an RA value based bundle with a leaderboard platform**

— **Why?** To improve patient care and rheumatologists awareness of their decision making against pre agreed values

— **How?** Geisinger Rheumatology has developed this to capture not only disease activity and function, but also value based opportunities and value based decision making around escalation and de-escalation

**Overview: Build out the rheumatology departments mindset of innovation and growth. Embed the usage of current tools across Geisinger. Potential to develop new tools and harness the data collected from these tools**

— **Why?** There is scope to increase the implementation of current tools within other clinics(a). For example, the pulmonology department in Danville Geisinger and the Rheumatology clinics in north-western Geisinger have recreated the nurse telephone clinic practice because of it's successful operational within rheumatology and the associated improved patient reported outcomes

— **How?** Encouraging other departments to use the tools. For example, the sleep department has initiated a process which requires all referrals to be sent through Ask-a-Doc first in which they are able to triage patients

- The center is in the process of developing a PACER ecosystem
- This will include a population management component and a patient APP

**Overview: Geisinger has hired 2 pharmacists to become dedicated rheumatology specialist pharmacists**

— **Why?** Rheumatology patients often suffer from polypharmacy due to multiple conditions. Dedicated pharmacists will be able to alleviate rheumatologist time spent reviewing medications, help track medication side effects, and improve adherence

— **How?** Currently, the team pharmacists are general pharmacists and Geisinger rheumatology department has designed a training program to facilitate their transition into rheumatology specialists

**References**: (a) KPMG interviews with Geisinger HCPs

# How can care be improved? (cont.)

## What advice would you give less specialized centers?

### Overview of advice: Focus on improving quality of care whilst decreasing costs

— **Why?** To ensure that patients are able to access appropriate care while managing their co-pay

— **How?** This can be achieved by:

1. Looking into co-pay support to decide on the right treatment
2. Prescribing drugs that insurance companies are likely to approve based on expertise
3. Researching potential avenues for funding support, e.g., foundations, that may be able to support patients on co-pay
4. Introducing solutions such as free Nurse Telephone Clinics to reduce unnecessary patient visits

### Overview of advice: Implement 30 or 60 min appointment times

— **Why?** Adjusting consultation duration to these on the hour, or half hour mark can increase the fill rate of clinic slots and help reduce dead-time in clinics represented by unfilled appointment slots

— **How?** A longer consultation time of 30 minutes for follow-up patients and 60 minutes for new patients are preferred by patients and physicians alike. Longer, more meaningful appointments at times are easier to plan and have proven to decrease our patient no show rates

### Further advice:

1. Make it convenient for PCPs to refer
2. Communicate clearly with colleagues
3. Set service expectations then carry them out reliably
4. Don't try to improve everything at once, try just one thing first
5. Learn the science of quality improvement and test it out

**References**: (a) KPMG interviews with Geisinger HCPs

# Case studies


| Case study name | Page |
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| Patient questionnaire | 130 |
| PACER (PAtient Centered Electronic Redesign) | 132 |
| Nurse-scheduled telephone visit | 134 |
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| AIM FARTHER RA population management | 136 |



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Appendix - Center Reports

# RA patient ER admission and elective surgery auto - notifications

## Overview

— Electronic auto-notification process that searches the Integrated Care System (ICS) for any patients with RA that are in the Emergency Room (ER), that are admitted or that are scheduled for elective surgery. This will then send a notification to the concerned rheumatologist in real time

— This enables the rheumatologists to review the care plan and allows them to make any necessary medication changes (e.g., withhold immunologic agents at times of severe infections)

## What is the rationale?

**Lack of communication:**

— Historically, treatment of patients with RA has been difficult to manage during acute admission episodes

— Rheumatologists are often the last to know when one of their patients are admitted to hospital for an acute episode. Acute admissions can be for a variety of reasons such as a falls, heart attacks or pneumonia

— At times of acute illness the attending physician may not be comfortable managing specific rheumatologic medications and may seek advice for what medication titrations or omission

— The electronic auto-notification system searches the ICS (integrated care system) for an event of interest (such as an admission, elective surgery or ER visit) and sends the episode to the rheumatologists

— This allows the rheumatologist to comment on the patient's proposed care plan and make recommendations if necessary

## What are the activities undertaken?

— Every morning the nurse co-ordinator receives a message with the list of RA patients who are either in the ER, have been admitted or are scheduled for elective surgery within the ICS:
  - The nurse receives 7-10 messages per week[(a)]
  - The system takes 5 minutes for the nurse to process[(a)]

## What are the activities undertaken? (cont.)

— The nurse co-ordinator will send the notification to the patient's rheumatologist

— The rheumatologist is then able to check the patient portal and makes appropriate comments
  - It takes 5 minutes for the rheumatologist to process and respond to the notification[(a)]

## What are the outcomes so far?

— Since they have started using this system, the team's awareness of their RA patients admitted has increased from around 50% to 100%[(a)]

— Faster communication between acute physicians and rheumatologists

— Increased patient care as patients are able to remain on their rheumatological medications when approved between attending physician and rheumatologist

— Reduced serious incidents relating to medication continuation at times of acute illness

— Improved awareness of a patient's events between rheumatology specialists

— Since the implementation of the new system the changes in patient's care plans by the rheumatologist has been:
  - 17% for ER visits
  - 25% for hospital admissions
  - 49% for elective surgery

**References**: (a) KPMG interviews with Geisinger HCPs

# Patient questionnaire

## Overview

— A diagnosis agnostic patient questionnaire that is used across the three RA centers

— Patients are encouraged to complete the questionnaire before they arrive at the center. They are encouraged to fill it in via their patient portal which can even be accessed from home

— The questionnaire was implemented in 2010 and has not been iterated since its inception 9 years ago. The center receives positive patient feedback regarding the questionnaire

## What is the rationale?

### A more comfortable method of extracting confidential information:

— Experience at the center shows that patients are more likely to fill in a questionnaire than tell their doctor confidential and sensitive information (such as changes in living arrangements and marital status)

### Time efficient processing:

— Patients are able to fill in the questionnaire in their own time without feeling rushed and without requiring an HCP to assist them

### Obtaining patient buy-in:

— Engagement is a big challenge with patients. Patients like to see that the information they are filling in is being read and actioned upon. Using PACER nurses and physicians are able to use information inputted into the questionnaire in real time to improve the doctor-patient relationship

— Over 2 years, 6,725 patients completed 19,786 touchscreen questionnaires[(c)]. Completion rates are now steady at 80%. 65% complete the questionnaire at the center and 15% complete at home before their visit

## What are the activities undertaken?

— Before every appointment, the patients are required to perform a questionnaire

— The front desk asks patients to complete the questionnaire upon check-in (via one of a portable or stationary iPads) if it has not been completed at home already

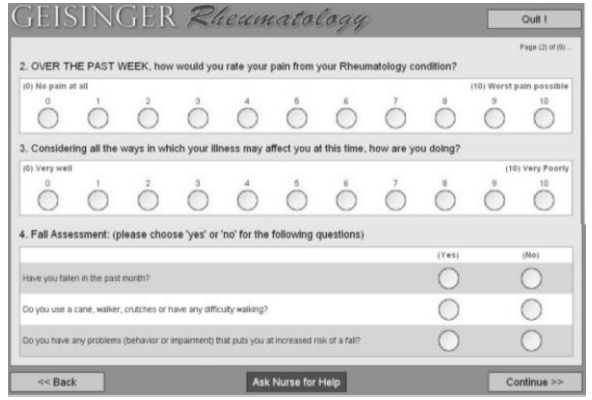
## What are the activities undertaken? (cont.)

— Patients can also fill the questionnaire before checking in by logging into their patient portal which can be accessed from home at their leisure

— The questionnaire domains include the 10-question MDHAQ, physical function scale; visual scales of pain, fatigue, stiffness, and global assessment; fall assessment; a full review of systems; patient reported tender joint counts; demographic data (such as marital status and work status); and 10 events of interest that may have occurred since the last encounter (such as fracture, hospitalisation, infection, medication side effect)

— The touchscreen questionnaire included a total of 110 items, although certain items (such as a review of systems) were grouped to allow a single answer if all items were negative

### Fig 1: extract from the patient questionnaire




**References**: (a) KPMG interviews with Geisinger KOLs; (b) Newman ED, et al. Touchscreen Questionnaire Patient Data Collection in Rheumatology Practice: Development of a Highly Successful System Using Process Redesign, *Arthritis Care Research* 2012;64(4):589–596 doi 10.1002/acr.21560; (c) Newman ED, et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, *Arthritis Care Res (Hoboken)*. 2015;67(4):546-53 doi: 10.1002/acr.22479; (c) Taylor MJ, et al. Systematic review of the application of the plan-do-study-act method to improve quality in healthcare. *BMJ Qual Saf*. 2014;23(4):290–298. doi:10.1136/bmjqs-2013-001862

## Benefits

- The questionnaire was implemented using a PDSA (plan do study act)[a], redesign methodology which allowed the team to make weekly iterations and work-around glitches
- If the patient needs assistance in completing the questionnaire, a nurse will offer to help fill it (e.g., visual problems)
  - For the questionnaires completed in center the iPads have timers which notify a nurse if the patient is taking a long time to complete a question. The nurse can then offer assistance
  - The average amount of time it takes to fill in the questionnaire by the patient for the first time is 9.5 minutes[c]. After that it is 4-6 minutes
- A tracker system tracks the patients journey with completing the questionnaire. It creates a queue for the nurse, showing patients in progress (yellow), those needing help (red) and those who have completed the questionnaire and are waiting for the nurse (green)
- The nurse can see certain questions to ask any necessary follow up questions based on the patients entries.
- The doctor will be able to review the entries before the consultation and be able to clarify or ask further questions as necessary

## Challenges

- The center noted 3 main problems:
  - Not enough time built into the clinic schedule to complete all tasks prior to the physician encounter
  - Physicians would interrupt the patient while they were completing the questionnaire as their time keeping was prioritized

## Tips to replicate this intervention

- One of the workstations included a slide-out shelf for the touchscreen to accommodate patients in wheelchairs
- Each iPad PRO cost $1,000[c]
- Four workstations were sufficient to provide an available touchscreen questionnaire station at all times for 10 providers seeing patients
- The waiting room space needed to accommodate the 4 workstations was 7 feet by 16 feet
- Build in a 20-30 min pre-visit buffer to give enough time for questionnaire completion and for nurse check-in

> We found that rheumatologists were simply not able to review all the documents before a consultation as it was too time consuming pulling different systems together
>
> - Geisinger Rheumatologist

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**References:** (a) Taylor MJ, et al. Systematic review of the application of the plan-do-study-act method to improve quality in healthcare. *BMJ Qual Saf.* 2014;23(4):290–298. doi:10.1136/bmjqs-2013-001862; (b) Newman ED, et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, *Arthritis Care Res (Hoboken).* 2015;67(4):546-53 doi: 10.1002/acr.22479; (c) KPMG interviews with Geisinger KOLs

# PACER

## PAtient Centered Electronic Redesign

### Overview

- Software program that integrates information from 4 disparate data sources and reassembles information into a series of actionable displays and functions
- PACER allows identification of trends over time
- PACER has an AI algorithm that assists doctors in prescribing medications and deciding on the correct course of treatment
- Signals escalation/de-escalation opportunities, provides previous DMARD list, provides value based decision table and captures physician decision making


## What is the rationale?

### More efficient alternative to EHR

- Electronic health records (EHR) are not always optimized for chronic disease management[(a)]
- It takes a rheumatologist on average 20 minutes to process adequate patient information from the relevant multiple sources,[(b)] which is considered too long[(a)]
- EHR does not always provide an adequate trending functionality which is important for RA[(a)]

## What are the key features of the intervention?

### Patient information

- PACER (PAtient Centered Electronic Redesign) collects information from electronic health records (EHR), patient questionnaires, nursing chart inputs, rheumatologist input, and previous or alternative specialty consultation records
- The patient summary tab includes previous pain points from last consultation, current problems identified by the patient, a summary of investigations, current medications and any relevant changes since last consult
- PACER allows doctors to look at medications trialed previously by the patient to aid in acute prescriptions to avoid repetition of failed therapeutics

### Patient review

- Patients are able to review their PROs from previous occasions. This helps patients see their RAPID3 and CDAI scores for comparison

## What are the key features of the intervention? (cont.)

- PACER creates a graph to show trends over time across a broad array of variable to help the patients put into context how they are feeling that day compared to previous visits
- Joint pain and its severity is illustrated through the drawing of a human diagram with hot spots highlighting the colour of the joint relating to the pain (green = low pain and red = severe pain)
- Doctors can set goals in collaboration with the patients and then print summaries after the visit that shows how they are doing as well as specific instructions between now and the next visit

### AI algorithm

- A new AI algorithm has been incorporated into PACER to signal potential medication management recommendations. These consist of three options for the physician: opportunity to escalate, de-escalate or no opportunity (effectively to leave the treatment as it is)
- AI also recommends possible medications to the rheumatologist taking into account medical need, costs and insurance coverage

## What are the outcomes so far?

- PACER is now used by 86% of center rheumatologists[(a)]
- Operational productivity has increased by 26%[(a)]
- CDAI is completed in 95% of RA patient consults[(a)]
- % of RA patients at low disease activity or remission has improved from 35% to 69%

**References**: (a) Newman ED, et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, *Arthritis Care Res (Hoboken)*. 2015;67(4):546-53 doi: 10.1002/acr.22479; (b) KPMG interviews with Geisinger KOLs

## Benefits

- PACER has created one of the largest rheumatology outcome databases at a single center (>120,000 measures of disease activity)[(a)]
- PACER allows the physician to have access to all the up-to-date information in one place in a timely manner
- Patients feel more empowered by the partnership fostered through PACER and buy into their management
- All PACER tasks are quick for the nurse to complete
- AI algorithm helps in improving prescribing practice. Biologic de-escalation measure helps in reducing biologic use (leading to cost savings for patients on expensive drugs)

## Tips to replicate this intervention

- Make it convenient for rheumatologists to review all patient information in a summary tab but also have the data behind the summary to allow for a deep dive when relevant
- Agree upon consensus guidelines that the algorithm can validate physician decisions against
- Ensure the inclusion of all sources of patient information that may not appear in usual electronic health records (EHRs)
- Partner with the digital team at your hospital to push for innovation

## Challenges

- PACER AI algorithm outputs, suggestions and questions might seem like policing
- Initially doctors can be skeptical of the algorithm. It usually takes ~6 months for physicians to accept the AI and become comfortable with the system

## What else could be done?

- Complete the development of the smartphone application that can link-in with PACER
- Publish recent PACER findings
- Continue developing the AI PACER algorithm to increase its applications and knowledge base
- Enhance AI learning to improve its recommendations, for instance to build in all current research initiatives

**References**: (a) Newman ED, et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, *Arthritis Care Res (Hoboken)*. 2015;67(4):546-53 doi: 10.1002/acr.22479; (b) KPMG interviews with Geisinger KOLs



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> We show the patient the review screen and patients really buy into their management and feel empowered
>
> - Rheumatologist

# Nurse-scheduled telephone visit

## Overview

— A formalized 'virtual visit' consultation with a nurse

— Allows lengthening of follow up consultation for Q&A

— No charge to patients for this service

— This has opened up 1,000 clinic slots annually over 1 year

## What is the rationale?

### Patient convenience

— Patients can travel >2hours to their appointments

— Virtual appointments eliminate the need for patients to travel to the center unnecessarily

### Patient finances

— The reduced appointments will help save money on travel costs and avoid patients unnecessary co-pay

### Potential to increase information gathering

— Patients sometimes tend to share more information with nurses than with the doctors[(a)]

## What are the activities undertaken?

— Access to the virtual consultation is physician driven. The rheumatologists will offer the opportunity to those with a noted trigger such as travel distances, mobility issues such as cost or disability or difficult scheduling

— A nurse telephone visit is usually conducted after 3 months for all stable patients

— Patients can make the appointment as they leave the center and provide their contact number

— Nurse telephone clinic can be scheduled anytime throughout Monday-Friday to suit the patient. This allows patients to schedule it around their activities of daily living

## What are the activities undertaken? (cont.)

— There are at least 10-15 telephone call consultations a week, each call on average lasts 10-15 minutes [(a)]

— Nurses have a smart text flow diagram which they can use for the conversation. It covers topics such as:

- Disease activity
- Have the patients had any events (infections, hospitalisations, surgery) since last appointment?
- If the patients have any pain, how much and where (this gives the global score)
- Medication refills and laboratory verifications

— Any nurses that come across extra information or a concern can highlight this to the physician and will make a note of it in the patients record that will be reviewed before the next consultation

## What are the outcomes so far?

— The telephone clinic has alleviated appointment pressures to open up over 1,000 clinic slots[(a)]. These may be available for more appropriate/clinically urgent cases

— Other clinics, such as pulmonary in Danville Geisinger and rheumatology at north-western Geisinger both noted the success of the telephone clinic and are now implementing it

— The telephone consultation uptake currently sits at ~20% of the RA patient population

**References**: (a) KPMG interviews with Geisinger KOLs

# Ask-a-Doc

## Overview

— Ask-a-Doc is an asynchronous communication tool that allows a provider to ask a question to specialists and have it answered within a desired timeframe with a documentation trail

— Ask-a-Doc is used by 87% of primary care physicians at Geisinger[b]

— 43 specialities participate in it and over 30,000 consults have been completed[b]

## What is the rationale?

### Patients have increasingly complex needs and Ask-a-Doc provides an alternative to a multi-disciplinary clinic:

— Though joints are the principle body parts affected by RA, other body organs can be effected as well[a]

— Multi-Disciplinary Team (MDT) clinics can be costly, inefficient, difficult to organise and troublesome to arrange reimbursement[b]

— Ask-a-doc is a virtual alternative to MDT clinics and allows physicians to consult with specialists and make patient referrals only when needed

### Improve communication

— Geisinger had a 30% communication failure rate before ask-a-doc was implemented[b]. This was measured by evaluating the answer rate of PCP raised questions using native EHR communication tools

## What are the activities undertaken?

— Ask-a-Doc allows a provider to ask questions to a specialist and have it answered reliably within a requested timeframe whilst providing the relevant legal documentation

— Ask-a-Doc was designed for primary care providers, of which there are c.500 within the Geisinger, and also for specialist physicians within Geisinger

— The timeframe for receiving the answer can be stated in the request

### Inpatient Ask-a-Doctor

— When patients with RA are admitted they will be admitted to the hospitalists department. The rheumatologist will not routinely be the primary care giver however rheumatologic medicine is often complex

## What are the activities undertaken? (cont.)

— The inpatient ask-a-doc software enables the hospitalists to consult rheumatologists for advice on treatment and management plans

### Relative value unit to incentivize doctors

— Doctors who provide answers to Ask-a-Doc responses will receive RVU credits to their department

— The credits are sent electronically to the department directors so they can measure value and distribute rewards accordingly

### Answer ratings

— Ask-a-Doc has a functionality that allows the asker to rate the respondents answers as a way of quality control. Reviews are scored with 1-5 stars. 97% score 4 or 5 star

— If a respondent receives two 1 or 2 star reviews within a quarter year, then the physician will be contacted by the Ask-a-Doc team to help them improve

## What are the outcomes so far?

— Average turnaround time to receive an answer is 6.5 hours[b]

— Within rheumatology, Ask-a-Doc accounts for 10% of patient referrals

— The Ask-a-Doc pathway opened up 5,850 new patient slots[b] in 2019

— Ask-a-Doc was associated with an approximately 14% reduction in total cost of care during the first month and a 20% reduction (P <.001) during the second. These reductions in cost of care appeared to be driven by reductions in emergency department visits and physician office visits[c]

**References**: (a) American College of Rheumatology (ACR). "New model for treating rheumatoid arthritis patients improves quality of care, reduces costs." ScienceDaily. 16 November 2014; (b) KPMG Interviews with Geisinger staff; (c) Newman ED, et al. Impact of Primary and Specialty Care Integration via Asynchronous Communication, ajmc.com/link/3586





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# AIM FARTHER RA population management

## Attribution, Integration, Measurement, Finances and Reporting of Therapies

### Overview

— Tableau®-based dashboard that tracks performance on quality measure bundle, population demographic and value-based care decisions

— The AIM FARTHER care model includes seven components: registry development, defining roles and attribution, integration of primary and specialty, a strategic approach to RA, quality measurement bundle development, take management and performance reporting and a new finance incentive model

KPMG

### What is the rationale?

— Geisinger recognized the lifelong cost impact on patients with RA and wanted to set up a new way to address this issue whilst improving patient lives

### What are the activities undertaken?

**Using people, processes and IT to improve patient lives:**

— Geisinger recognized the importance of objectively and routinely measuring disease activity, and are able to use that information to engage patients and drive a new systematic strategic and cost effective approach to RA care

— Using PACER (see case study page 132), to pull information from disparate sources rheumatologists created a patient level scorecard to measure RA care gaps, and enabled these gaps to be reliably closed at and between clinic visits

— The individual patient scorecard results were combined into performance reports at the provider, department and division levels and shared transparently with each other to improve overall patient care and cost savings

— AIMFARTHER was developed and tested on 2,378 patients with RA and 17 rheumatologists at Geisinger

— The study team held monthly internal feedback forums to discuss quality and evolve the program with all rheumatology providers. This allowed the team to move from engagement buy-in to project ownership

### What are the activities undertaken? (cont.)

AIM FARTHER allowed rheumatologists to make more informed treatment decisions. In some cases this meant that patients were able to have their treatment de-escalated without clinical deterioration

**Seven components:**

— The AIM FARTHER care model includes seven components:

1. Chronic disease registry development
2. Defining roles and attribution
3. Integration of primary and specialty care
4. New strategic approach to RA care
5. RA quality measure bundle development
6. Task management and performance reporting
7. New financial incentive model

— The RA quality measure bundle includes eight measures: RA on DMARD, active RA on DMARD, RA with CDAI measurement, RA at low disease activity, tuberculosis testing if on a biologic agent, influenza vaccination, pneumococcal vaccination, and low density lipoprotein (LDL) level checked

### What are the outcomes so far?

— Cost savings from de-escalating use of costly biologic drugs came to $720,000 for 2013[(b)]

— Number of patients with RA achieving 100 percent of their applicable quality measures increased from 22% at study initiation to 40% at 22 months[(b)]

— Significant improvement in all eight of the quality measures tracked except active RA on DMARD (which only rose from 92 percent to 93 percent)[(b)]

**References**: (a) KPMG interviews with Geisinger KOLs (b) American College of Rheumatology (ACR). New model for treating rheumatoid arthritis patients improves quality of care, reduces costs. ScienceDaily, 16 November 2014





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KPMG

# Grace C Wright MD PC

**New York, USA**

4 March 2020

**kpmg.com/uk**

# Summary

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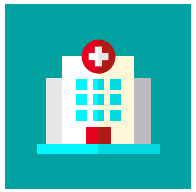

## Context

### Community-based practice

— Grace C Wright MD PC is a private community center run by a single rheumatologist. It offers comprehensive care, including fast access to diagnosis and appropriate treatment, to a wide spectrum of patient types

— The office-based center is located in New York City and patients come from the city itself and beyond

— Treatment options are available for all rheumatic patients, including those with rheumatoid arthritis (RA), ankylosing spondylitis (AS), psoriatic arthritis (PsA) and osteoarthritis (OA)

### Focus on single point of contact care

— Rather than providing specialized care focused on one rheumatic condition, the center acts as a single point of contact for all rheumatic patients throughout the course of their treatment

— Whilst patients can be referred externally to specialists if required, the center has created a case manager role. It aims to ensure coordinated and holistic support is delivered for the primary rheumatic condition and any other associated comorbidities

## Key strengths in the delivery of RA care

### Provision of emotional support

— The center has a focus on providing patients with emotional support throughout the diagnosis and treatment of RA

— The small nature of the practice has enabled the team to build a cohesive environment that facilitates close and trusting physician-patient relationships

### Fast patient processing

— The center has developed various processes to utilize the limited resources available, whilst providing high quality patient care

— The center is able to efficiently process the patients who arrive at the center with varying RA diagnoses, e.g., patients who have had comorbidities overlooked by their Primary Care Physician and require immediate attention

### Holistic patient care

— The center has a well-established referral network that ensures patients can be treated externally for a wide range of comorbidities associated with RA

— The role of a case manager further supports complete access to care

## Key challenges faced in delivery of RA care

### Access to immediate expertise

— The center relies heavily on an external network of specialists to ensure that RA patients are treated adequately for any comorbidities

— Whilst the referral process is catalysed by an efficient patient processing system, a lack of access to immediate internal specialists (e.g., endocrinologist) can create interruptions in accessing treatment

### Access to medication

— It can be difficult for patients to navigate the complex system of financing medication. Access to RA medication can be subsequently limited, especially to those that are more costly

### Delays caused by pre-authorization

— Lengthy insurance pre-authorization processes for RA treatments can result in delayed access to treatments

— Managing these processes and appeals requires the attention of the team, which can therefore reduce valuable physician or nurse time spent with the patient

# RA in the US: Healthcare system overview

## RA challenges in the US healthcare system:

- It is estimated that there will be a significant shortage of rheumatologists in the US by 2030. In 2015, the demand exceeded the supply of clinical providers by 700 (12.9%). This imbalance is expected to grow to a deficit of 4,133 providers (102%) by 2030[(a)]
- On an average, the lag time between a patient first experiencing symptoms and being referred to a rheumatologist is over 5 months in the US[(b)]
- Measurement of quality has been noted by the American College of Rheumatology to be essential to the care of patients with rheumatic disease. The abundance of quality measures can cause measurement fatigue and a discrepancy between consistency of measures routinely used in clinics[(c)]

## US healthcare system overview:

### Publically funded healthcare:

- Government spending on healthcare accounted for 81.8% of total health spending in 2016. The main channels of public spending are Medicare[1], Affordable Care Act (ACA)[2] subsidies and Medicaid[3][(d)]
- Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older, and the disabled. Medicaid is a health coverage program for Americans with low income and resources. The Affordable Care Act (ACA), is a US law aimed at increasing access to affordable health insurance for Americans
- According to the Centers for Medicare & Medicaid Services (CMS), Medicare spending is likely to grow at an average rate of 7.4% during 2017-27, while spending on Medicaid and private prepaid plans will average 5.5% and 4.8%respectively[(d)]
- The ACA expanded Medicaid to make policies affordable, by extending the fund to subsidies nearly all low-income individuals with incomes at or below 138% of the poverty level[(d)]

### Privately funded healthcare

- Approximately 69.3% of Americans aged under 65 had private health cover in 2017[(d)]
- Those without employer policies buy their own insurance, many through ACA
- A major concern is the rapid increase in deductibles on health insurance. Deductibles on employer-based health plans almost quadrupled during 2007-19, to an average of US$1,350 per person[(d)]
- The five biggest commercial health insurers are UnitedHealth, Anthem, Aetna, Cigna and Humana, together representing about 43% of the total insured US population[(d)]

## Rheumatoid Arthritis in the US:

### Patients:

- Prevalence: 0.6%[(e)]
- Women are about two to three times more likely to develop RA than men[(f)]

### Physicians:

- There are 6,013 providers in the US adult rheumatology workforce, representing a corresponding clinical FTE of 5,415[(a)]. This includes physicians, nurse practitioners (NPs), and physician assistants (PAs). 4,997 of these 5,415 FTE are rheumatologists, 190 PAs and 228 NPs

### Guidelines:

- RA: 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis

### Patient advocacy groups (PAGs)/Medical societies

- American College of Rheumatology (ACR)
- Arthritis Foundation
- Rheumatoid Arthritis Foundation
- Global Healthy Living Foundation/Creaky Joints

**Notes**: (1) Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older (2) The Affordable Care Act (ACA), commonly known as Obamacare, is a US law aimed at increasing access to affordable health insurance for Americans (3) Medicaid is a health coverage program for Americans with low income and resources which is jointly funded by the federal government and the states

**References**: (a) Battafarano, DF. et al. 2015 American College of Rheumatology Workforce Study: Supply and Demand Projections of Adult Rheumatology Workforce, 2015–2030. *Arthritis Care Res*, 70:617-626. doi:10.1002/acr.23518; (b) Barhamain AS, et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms. *Open Access Rheumatol.* 2017;28(9):139-150 doi: 10.2147/OARRR.S138830 (c) Newman ED, et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, *Arthritis Care Res (Hoboken)*. 2015;67(4):546-53 doi: 10.1002/acr.22479; (d) The Economist Intelligence Unit Healthcare Industry Report 2nd Quarter 2019; (e) Iqbal S, et al. Review of Rheumatoid Arthritis. US Pharm. 2019;44(1)(Specialty&Oncology suppl):8-11; (f) Rheumatoid Arthritis by the Numbers: Facts, Statistics, and You. What is Rheumatoid Arthritis? [online] https://www.healthline.com/health/rheumatoid-arthritis/facts-statistics-infographic#4 Accessed: 2 September 2019

# The Rheumatology Center



## Grace C Wright MD PC

| | | | |
|---|---|---|---|
| **Type** | — Grace C Wright MD PC is a private community-based center for rheumatology. It is run by a single rheumatologist(a) | **Locations** | — New York City, USA |
| **Core services** | — The center provides treatment for various rheumatic diseases such as rheumatoid arthritis (RA), ankylosing spondylitis (AS), psoriatic arthritis (PsA), osteoarthritis (OA) and Dupuytren's contracture(a)<br>— Treatments offered include injections and biologic medications for inflammatory rheumatic conditions<br>— There is an infusion unit located within the center | **Population served** | — Patients visiting the center come from New York City itself and beyond |
| **Size** | — The team includes one rheumatologist, one rheumatology nurse, one office manager and one receptionist | **Demographics** | — ~1,800 RA patients are treated annually(c)<br>— The center caters for patients of all ages, typically between 16-90 years old<br>— Patients with Medicare are accepted by the center, resulting in a larger proportion of patients who are 65+ or disabled |
| **Research scope** | — Research is conducted using real world evidence from the data in patient registries | **Hours of availability** | — Monday, Tuesday, Wednesday (10:00 – 17:00)(b)<br>— Telemedicine is available on other days |
| **Patient type catered to** | — Patients suffering from rheumatic diseases | | |

**References:** (a) About Dr. Grace C Wright MD. Vitals [Website] https://www.vitals.com/doctors/Dr_Grace_Wright.html. Accessed 24 February 2020; (b) Doctor Wright's profile. MedicineNet [Website]. https://www.medicinenet.com/doctors/2df59757-ec41-4bd7-8caf-ac6690bfa4b6/grace-wright/new-york-ny_doctor.htm. Accessed 24 February 2020; (c) KPMG interviews with center HCPs

# The team

## Core team profiles

- 1 Rheumatologist
- 1 Rheumatology Nurse
- 1 Office manager
- 1 Receptionist

## Key features of the care delivery team

### Collaboration with specialists and healthcare professionals outside the center

- The team collaborates closely with external specialists to manage comorbidities in RA patients through a regular and efficient referrals process. The types of specialists include pulmonologists, cardiologists, dermatologists, endocrinologists, health psychologists and psychiatrists

### Focus on patient wellbeing and emotional support

- The center has a focus on providing patients with emotional support throughout the diagnosis and treatment of RA. The small nature of the practice has enabled the center to build a cohesive environment that facilitates trusting physician-patient relationships

### 'Continuity care provider'

- Rather than providing specialized care focused only on RA, the team ensures patients are holistically cared for. For example, the team will ensure that patients are referred to and seen by appropriate comorbidity specialists by setting up the appointments and checking whether the appointment have taken place

## Affiliations outside the center

(collaboration based on patient needs)

- Pulmonologists
- Cardiologists
- Dermatologists
- Endocrinologists
- Health psychologists
- Psychiatrists
- Gastroenterologists
- Neurologists
- Nephrologists
- Gerontologists

## Governance and processes

### Protocols:

- American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis as well as EULAR's recommendations
- United Rheumatology: a group of 700 independent rheumatology practices that help facilitate practice management and provide management guidelines for various disease states

### Patient records:

- Patient details are recorded electronically at every visit
- Records are stored through a customizable electronic patient record database designed for small offices

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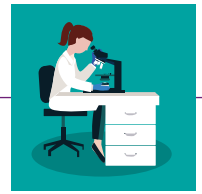
# Overview of interventions in place for RA & comorbidities

Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis & Treatment initiation
In secondary care



Interventions

### Running programs to advocate for RA

- The center raises awareness for RA by teaching people about RA and how to advocate for the condition
- To promote and build exposure to the programs, the center collaborates with non-profit advocacy groups such as the Association of Women in Rheumatology(AWIR) [(a)]
- AWIR was founded by the center's rheumatologist and engages in advocating for RA at Federal and State level, such as the AWIR Hill days in Washington
- The center also provides healthcare professional (HCP) targeted education on RA, with a primary focus on nurse practitioners and assistant physicians

### Efficient patient processing (see case study page 150)

- The center has developed various processes to best utilize the limited resources available, whilst continuing to provide high quality care to patients
- For example, each patient is managed through an established processing system that ensures all components of the patient pathway are addressed by a member of the team
- The center has also adopted a 'divide and conquer' approach to the pre-authorization procedure, which assigns responsibility to each team member to a particular aspect of the process

### Tailored patient education (see case study page 152)

- Patient education is provided by the center through a variety of mediums to meet the wide range of socio-economic backgrounds and health literacy levels amongst the patients
- Education is provided formally and informally, in group and one-to-one formats, and with differing levels of external educational support
- The center also takes a proactive role in sharing the patient learnings amongst the various patient groups

### Case manager role (see case study page 154)

- In order to coordinate patient care between referrals and facilitate faster access to treatment, the center has adopted a case manager role
- The role involves managing the patient referral pathway and supporting patients with the pre-authorization approvals/appeals process

### Direct contact with the Rheumatologist

- All the patients are seen by the rheumatologist. New patients are seen by the whole team for an hour, with all other patient consultations taking ~20 minutes (minimum of 15 minutes)

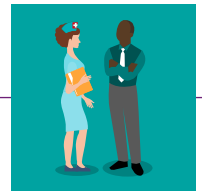
**References**: (a) Association of Women in Rheumatology: Promoting mentorship & inclusivity. Healio [website] https://www.healio.com/rheumatology/practice-management/news/online/%7B6a175ae0-04fd-475f-a803-08f7b6986404%7D/association-of-women-in-rheumatology-promoting-mentorship-inclusivity Accessed: 6 March 2020

## Treatment and Management
### Medical management

**Collaboration with external specialists (see case study page 156)**

- The center collaborates with specialists from other practices to treat and manage patients with associated comorbidities
- Patients are referred to external specialists as required by contacting the practices and providing patient details
- The team collaborates with various comorbidity specialists and HCPs, such as pulmonologists, cardiologists, dermatologists, endocrinologists, health psychologists and psychiatrists

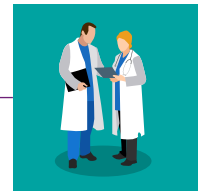
## Treatment and Management
### Non-medical management



**Focus on patient emotional support**

- The center has a focus on providing patients with emotional support throughout the diagnosis and treatment of RA. The small nature of the practice has enabled a cohesive environment to be built with trusting physician-patient relationships
- Access to external specialists is provided to further aid with this support, including psychiatrists and psychologists

## Medical care & Follow-up
### Monitoring of chronic disease/flare up



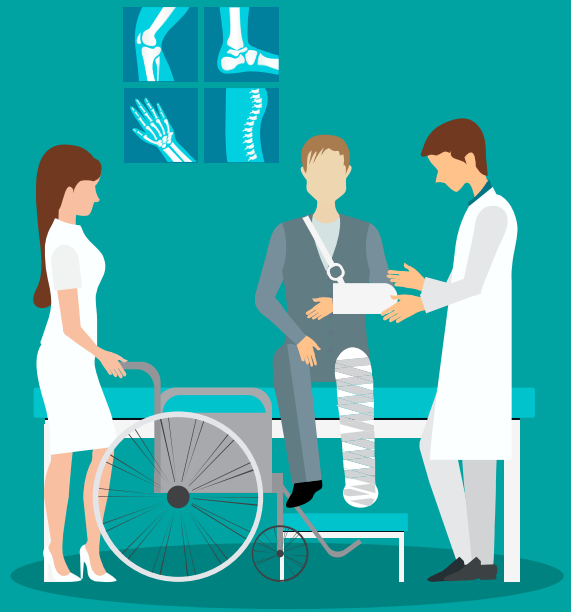
**Follow-up appointment**

- Frequency of follow-up care and appointment times are dependent on treatment response and how controlled the disease progression is
- For patients doing well on treatment, frequency of consultations can vary from once every 3 months to once every 6 months

**Use of patient reported outcome (PROs)**

- A variety of PRO measures are collected at every patient visit to monitor disease activity, including patient completion of Health Assessment Questionnaires
- Objective measures are also collected, including results from the composite scale of Clinical Disease Activity Index
- The center will conduct one-to-one conversations between patients and physicians in order to capture more informal feedback

# These interventions have improved outcomes



"We like to talk to patients about their day-to-day lives. It allows us to open up the conversation"

– Rheumatologist

## How do you quantify the benefits in RA?

### Objective measures (KPIs):

— **Clinical Disease Activity Index (CDAI):** A composite score based on four PROs, including:[(a)]

- **Swollen 28-Joint Count (SJC[28]):** Includes joints of shoulders, elbows, wrists, knees etc.
- **Tender 28-Joint Count (TJC[28]):** Includes joints of shoulders, elbows, wrists, knees etc.
- **Physical Global Assessment (PGA):** Patient's self-assessment of overall RA disease activity on a scale of 1-10 (where 10 is maximum activity)
- **Evaluator's Global disease Activity (EGA):** Evaluator's assessment of overall RA disease activity on a scale of 1-10 (where 10 is maximum activity)

### PROs:

— Health Assessment Questionnaires

— As part of the of the center's treat-to-target strategy, the center creates individual treatment outcome targets for each patient, allowing for customized outcomes

## How have these interventions improved patient outcomes?

### RA

— Early diagnosis of RA in patients inhibits further deterioration of condition

— Potential for improved quality of care and treatment outcomes

### Comorbidities

— Increased access for patients to RA comorbidity specialists

**References**: (a) Myriad RBM: Vectra. Myriadrbm [website] https://myriadrbm.com/products-services/vectra-da/ Accessed 19 December 2019

# How can care be improved?

## What is next for the center?

### Overview: Continuing to advocate for RA

— **Why?** Actively promoting awareness of RA raises the condition's public profile. By making people aware of the condition and where support is available, it can help improve access to care

— **How?**

- Increasing collaboration with non-profit organizations to host events that raise awareness of RA
- Providing further education for healthcare professionals (HCPs) through the Association of Women in Rheumatology

### Overview: Maintaining attendance at RA-related conferences and meetings

— **Why?** By attending RA-related group events, it enables the center to gain an awareness of the latest developments in RA care and apply these learnings to patient care

— **How?**

- Regular attendance at RA-related conferences and meetings
- Engaging with other healthcare professionals, to increase knowledge and access to events being held

## What advice would you give less specialized centers?

### Overview of advice: Develop a network of trusted comorbidity experts

— **Why?** A well-organized and extensive network of specialists in treating RA and its associated comorbidities will help ensure that the patient receives the necessary holistic care

— **How?**

- Establish a network of RA experts in the local area and further afield
- Develop a system that can effectively recommend and refer patients to the necessary HCP, without the patient being lost in referral

### Overview of advice: Educate speciality colleagues outside of rheumatology about the complications associated with RA inflammation

— **Why?** Inflammation caused by RA can have widespread implications on other diseases, which may not be appreciated outside of rheumatology. Specialist colleagues treating RA should be made aware of these nuances, so that they can factor this into their treatment provision

— **How?**

- Increase engagement with other specialists to spread awareness of how RA inflammation can impact other pre-existing conditions

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# Case studies


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# Efficient patient processing

## Overview

— The center has developed various processes to utilize the limited resources available, whilst providing high quality patient care

— Processes include the initial assessment, medical consultation, the referrals process, and management of treatment pre-authorization

## What is the rationale?

— Recent significant efforts to make patient processing more efficient have been effective in enhancing the quality of patient care provided. These efforts have been undertaken as part of a drive to improve the ability to measure healthcare quality and performance[(a)]

— The impact of process improvements has been recognized as particularly successful in areas with complex tiered payment systems, such as seen in the US[(a)]

## What are the key features of the intervention?

— The center is comprised of a small team, of which three members of staff have direct exposure to the patient

— Establishing various processes to manage aspects of the patient pathway has enabled the team to efficiently provide comprehensive and effective care, whilst simultaneously meeting patient demand

— The processes cover:
- Initial assessment
- Medical consultation
- Referrals process
- Treatment pre-authorization procedure

— To minimize non-adherence, all authorization, referral and imaging processes are routinely completed by the office within 48 hrs of the visit

## What are the activities undertaken?

### Initial assessment

— Patients arrive at the center at various stages of diagnosis, including:
- Never diagnosed (new cases)
- Misdiagnosed by Primary Care Physician (PCP) and needing a second opinion
- PCP did not provide full diagnosis of comorbidities
- Patients not responding well to current treatment

— To prioritize patients, the center provides fast access to an initial screening, intended to deliver immediate results. A first flare analysis may also be conducted to further help aid diagnosis

— Through this, multiple patients are assessed quickly and adequately diagnosed

### Medical consultation

— Patients are managed through a well-established process, which sees each team member utilized in providing a specific role. These roles include:

1. **Initial consultation with the rheumatology nurse**: Check medical history and provide patient education as required
2. **Main consultation with the rheumatologist**: Discuss medical notes, treatments and management of RA
3. **Collection of samples by nurse**: Blood samples are collected by the nurse in the infusion unit located within the center
4. **Office Manager arranges future steps**: Organization of future appointments or referrals deemed necessary

— The designation of all components in the patient pathway ensures all aspects are addressed by a team member

**References:** (a) Desai S, et al. quality measurement and improvement in rheumatology: Rheumatoid arthritis as a case study. *Arthritis Rheum.* 2011;63(12):3649-3660





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## What are the activities undertaken? (cont.)

### Referrals process

- The center takes a proactive role in managing the patient referrals process to external specialists. Examples of this include arranging the patient appointment and checking the patient has been seen by the external specialist
- Patients are therefore assured that they will not be forgotten along the patient pathway

### Pre-authorization management

- The team has developed a 'divide and conquer' approach to managing the pre-authorization process, with each team member assigned one aspect of the process that they then become responsible for. Each team member is assigned to the following:
  - Testing/imaging: Office manager
  - Biologics administered subcutaneously: Partnered with a non-dispensing pharmacy to process the paperwork
  - Biologics administrated in the infusion room: Center has own system

## What are the outcomes so far?

- A patient requiring urgent care can expect to have their condition brought under control between one to two weeks, as testimony to the center's effectiveness in processing patients quickly[(a)]

## Benefits

### Benefits to patients:

- Patients receive faster access to in-center care and specialist treatment, with delays mitigated
- Monitoring of patient pathway and referrals process reduces likelihood of patient being lost in care
- The pre-authorization process has been sped up and unnecessary delays have been reduced

### Benefits to HCPs:

- Efficient management of patient care enables better utilization of center resources
- Patients respond positively to being seen quickly by the center

## Challenges

- Processes that are heavily reliant on technology or the whole team being available are therefore vulnerable to delay if resources are not available

> "There are 3 people in the circle of care who provide everything. This system makes sure that everything gets done"
>
> - Rheumatologist

**References:** (a) KPMG interviews with center HCPs

# Tailored patient education

## Overview

— Patient education is provided by the center through a variety of mediums to meet the wide range of socio-economic backgrounds and health literacy levels amongst the patients

— Education is provided formally and informally, in group and one-to-one formats, and with differing levels of external educational support

## What is changed onale?

— Limited health literacy has been identified as having a negative impact on health outcomes, including an increased risk of hospital admission and sub-optimal disease management[a]

— Educational resources have shown to provide the support needed to address this illiteracy and promote positive patient outcomes[b]

## What are the key features of the intervention?

— The center treats a wide range of patients from multiple socio-economic backgrounds, with various levels of access to resources. Patients also differ in their ages and health literacy abilities

— The center takes a proactive role in tailoring its education to these different groups and sharing patient learnings between them

— Education is provided through a multitude of approaches, including:

- Nurse provision of patient education
- Educational programs set up with pharmaceutical companies
- Advocating for RA

## What are the activities undertaken?

### Nurse provision of patient education:

— Nurse-led education is delivered by the nurse during both the initial consultation and follow up consultations as per patient needs

— It is reinforced through educational materials and directing the patients towards other resources (e.g., website links)

— The use of images and pictures on wallboards throughout the center has further illustrated topics related to the disease. This has helped facilitate the learning of complicated processes

### Educational programs set up with pharmaceutical companies

— In the past, the center has collaborated with pharmaceutical companies to establish patient education groups

— The informal groups were designed to inform and support the patient, and encouraged patients to share stories and learnings

### Advocating for RA

— The center's rheumatologist plays a very prominent role in advocating for RA

— For example, the rheumatologist has taught others how they too can advocate and educate the public about the condition

— In order to promote this scheme and build exposure, the center organizes field days with non-profit organizations

**References:** (a) Baker DW, et al. Functional health literacy and the risk of hospital admission among Medicare managed care enrollees. *Am J Public Health.* 2002;92(8):1278–1283; (b) Mathijssen E, et al. Support needs for medication use and the suitability of eHealth technologies to address these needs: a focus group study of older patients with rheumatoid arthritis. *Patient Prefer Adherence.* 2018,12:349-358

## What are the outcomes so far?

— The center has seen that the patients are taking better care both of their RA condition and their comorbidities. For example, no shows have fallen to <1/20 and missed prescription refills are now minimal[(a)]

## Benefits

### Benefits to patients:

— Increased patient empowerment through greater understanding of the disease

— Enhanced patient outcomes through improved management and control of the disease

— Access facilitated to educational resources tailored to the financial constraints of the patient

### Benefits to HCPs:

— Improved utilization of center resources, as a result of patients managing their condition better and reducing reliance on the center

## Challenges

— Patients may lack access to the technology necessary to utilize the educational resources made available by the center

— Financial resources and time is required to develop the educational material

**References:** (a) KPMG interviews with center HCPs



Contents

Appendix - Center Reports

> We see many patients with different health literacy levels and varying levels of access to resources. Whilst we therefore have to create new learnings for multiple groups of patients, it also means we can share the successful learnings with other patients
>
> - Rheumatologist

# Case manager role

## Overview

— To coordinate patient care between referrals and facilitate faster access to treatment, the center has adopted a case manager role for all RA patients

— The role involves managing the patient referral pathway and supporting patients with the pre-authorization approvals/ appeals process

> We consider ourselves the continuity care providers
>
> -Rheumatologist

## What is the rationale?

— There is a high prevalence of comorbidities associated with RA and other rheumatic conditions, such as osteoporosis[a][b]

— If left untreated, these comorbidities can play a large role in reducing patient quality of life. Limited access to appropriate healthcare professionals (HCPs) can further exacerbate this, by preventing the patient from receiving necessary care[c]

— To access comorbidity care, patients may need to attend multiple appointments with different specialists (e.g., ophthalmologists/ dermatologists). A case manager can help to support the patient by coordinating this process

## What are the activities undertaken?

— The center plays an active role in helping to coordinate patient care, including:

- Organizing referral to external specialists
- Checking that the appointment with the specialist has occurred
- Supporting the pre-authorization appeals and approval process to treatments requiring finance for testing/imaging, general RA medication and biologics

## What are the outcomes so far?

— The center's rheumatologist is able to spend increased time providing patient consultations and responding to more medically critical cases

## Benefits

### Benefits to patients:

— Monitoring of patient pathway and referrals process reduces likelihood of patient being lost in care

— Effective coordination of care provides a more efficient patient experience of the pathway and enables access to an established referral network of specialists

### Benefits to HCPs:

— Better management of patient care (e.g., pre-authorization process) supports more efficient use of center resources, such as increasing time for patient consultations

— Reduced burden on HCPs as patients requiring specialist treatment are sent to the appropriate physician

## Challenges

— Patients may require labor-intensive and complex care, which could impact the availability of staff to support other patients through different parts of the patient pathway

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Appendix - Center Reports

**References**: (a) Deslauriers S, et al. Factors associated with waiting times for persons with rheumatic conditions in multidisciplinary pain treatment facilities. *J Pain Res*. 2019;12:2379–2390; (b) Dougados M, et al. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). *Ann Rheum Dis*. 2014;73(1):62-8; (c) Bain L, et al. Modeling best practices in chronic disease management: the Arthritis Program at Southlake Regional Health Centre. *Journal of Allied Health*. 2012;41:e83-7

# Collaboration with external specialists

## Overview

— The center collaborates with specialists from other hospitals/practices to treat and manage patients with RA comorbidities

— The team to provides the patient with external specialist guidance if it is not available in-center

## What is the rationale?

— Patients with RA have a high prevalence of comorbidities and related risk factors. Comorbidities of RA include osteoporosis, obesity and depression[a]

— Delayed diagnosis of comorbidities such as depression can severely hamper patient care, quality of life and may even increase chances of mortality as it leads to unchecked progression of these diseases[b][c]

— Access to the appropriate healthcare professionals however can allow the patient to receive the necessary care and mitigate the impact of these associated comorbidities[d]

## What are the key features of the intervention?

— The center has established a referral network to external specialists, who can provide support in treating patients with expert care as required

— The team collaborates with various comorbidity specialists and HCPs, including pulmonologists, cardiologists, dermatologists, endocrinologists, health psychologists and psychiatrists

— Patients are referred to external specialists through the Office Manager, who contacts the specialists and provides patient details

## What are the activities undertaken?

— To utilize the referral network established, the Office Manager contacts the specialist and provides the patient's details. The center will also set up the appointment on the behalf of the patient

— Results from the blood samples are sent to the external specialists (with patient consent) if required to aid diagnosis and treatment

— Whilst the patient waits to be seen by the specialist, the center will continue to provide care to the patient. The center therefore ensures that the patient is not left unsupported between referrals

— Once the date of the appointment has passed, the center will call up the specialist to ensure that the appointment took place and gauge what the next steps are for the patient (e.g., referral back to the center). By tracking the patient's movements, it ensures that no patient is forgotten and is able to access constant care

— Specialists (e.g., dermatologists) can also take advantage of the referral network, by referring patients to the rheumatologist

Contents

Appendix - Center Reports

**References**: (a) Dougados M, et al. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). *Ann Rheum Dis.* 2014;73(1):62-8. doi: 10.1136/annrheumdis-2013-204223; (b) Hamblin MJ, et al. Rheumatoid arthritis-associated interstitial lung disease: diagnostic dilemma. *Pulm Med.* 2011;2011:872120. doi:10.1155/2011/872120; (c) Withers MH, et al. Identification and Treatment Optimization of Comorbid Depression in Rheumatoid Arthritis. *Rheumatol Ther.* 2017;4(2):281–291. doi:10.1007/s40744-017-0072-4; (d) Bain L, et al. Modeling best practices in chronic disease management: the Arthritis Program at Southlake Regional Health Centre. *Journal of Allied Health.* 2012;41:e83-7

## Benefits

**Benefits to patients:**

— Increased access to specialists who can provide the necessary guidance in treating RA and its associated comorbidities

— Tracking of patient movements throughout the referral process helps to ensure that no patient is forgotten in the patient pathway

**Benefits to HCPs:**

— Reduced burden on HCPs as patients requiring specialist treatment are sent to the appropriate physician

## Challenges

— Centers may lack the connections to establish a referral network

— Specialists required for treatment of RA and its associated comorbidities may not be available or be located too far away from the center, making it too inconvenient for the patient

Sources: (a) x



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Appendix - Center Reports

> We make the referrals and set up the appointments so we know the connection has been made
>
> - Rheumatologist

KPMG

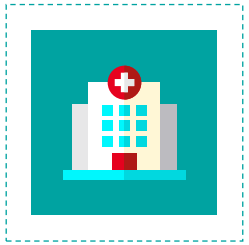
# Harbor-UCLA Medical Center

**Los Angeles, United States of America**

Visit conducted September 25th 2019

**kpmg.com/uk**

# Summary



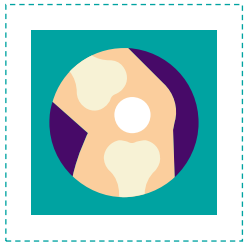
## Context

### The center

- The Harbor-UCLA Medical Center is one of the five level one trauma centers in Los Angeles (LA) County. It is a part of the Los Angeles County Department of Health Services (an integrated system of health centers, community clinics and hospitals)
- The center is a major academic teaching hospital with almost 450 residents and fellows in over 34 accredited programs
- The center offers primary care services, such as pediatric, internal medicine and gynecology services. It also provides specialty care services in fields such as neurology, cardiology, rheumatology, dermatology, oncology, orthopedics and ophthalmology
- Harbor-UCLA Medical Center also conducts research in fields such as reproductive endocrinology, genetics, infectious diseases, trauma, respiratory medicine, cardiology and rheumatology

### Primary Care Physician (PCP) integration

- The center is affiliated with 100-120 satellite primary care clinics and hospitals and only accepts referrals from PCPs within their own ecosystem
- The PCPs fill in a questionnaire on the e-consult platform. Inclusion / exclusion criteria are used to spot signs of inflammation or specific symptoms and refer patients to the appropriate clinic



## Key strengths in the delivery of RA care

### Focus on Patient Reported Outcomes (PROs)

- The center has been collecting PROs consistently for the last 10 years, which they use to better manage patients and inform their studies
- At each visit to the practice, patients are asked to complete a comprehensive questionnaire. This touches on functional limitations, Rheumatoid Arthritis (RA) specific knowledge, mental health (including depression and anxiety), quality of life, pain and fatigue

### Management of comorbidities

- The center proactively manages comorbidities such as depression, cardiovascular diseases, interstitial lung disease (ILD), uveitis, etc.
- The rheumatologists communicate and collaborate regularly with comorbidity specialists, enabling patient referrals when needed

### Healthcare Professional (HCP) education

- Rheumatology trainees are fully involved in the diagnosis and management of RA
- Trainees are encouraged to conduct the main interview with patients, which allows them to gain experience and learn from patients while simultaneously increasing how much time patients have with a physician

### Patient-Physician relationship

- The center takes steps to engage with patients and develop trusting patient-physician relationships
- The center encourages its diverse patient population to use a language which they are comfortable with, and provides access to 35+ interpreters and multi-lingual patient forms

## Key challenges faced in the delivery of RA care

### Small rheumatology division

- The rheumatology division is small. It consists of only 2 full-time attending physicians, as well as a rheumatology nurse practitioner, 2 study coordinators, and study nurse
- The rheumatologists spend the majority of the year attending to the clinic. As such, whilst the center does conduct research, there is no protected time for research

### Access to care

- A large population in the LA County area does not have access to medical care due to various socio-economic factors
- In many cases, patients present themselves for treatment late, once the disease has already become established

### Cultural barriers

- The center receives patients with a diverse range of ethnicities and backgrounds. Some patients may therefore be suspicious of certain treatment methods or involvement in clinical trials

### Getting medication to patients

- Providing patients with the medication they need can sometimes be a challenge as their insurance coverage may not include it

# RA in the US: Healthcare system overview

## RA challenges in the US healthcare system:

- It is estimated that there will be a significant shortage of rheumatologists in the US by 2030. In 2015, the demand exceeded the supply of clinical providers by 700 (12.9%). This imbalance is expected to grow to a deficit of 4,133 providers (102%) by 2030[a]
- On an average, the lag time between a patient first experiencing symptoms and being referred to a rheumatologist is over 5 months in the US[b]
- Measurement of quality has been noted by the American College of Rheumatology to be essential to the care of patients with rheumatic disease. The abundance of quality measures can cause measurement fatigue and a discrepancy between consistency of measures routinely used in clinics[c]

## US healthcare system overview:

### Publically funded healthcare:

- Government spending on healthcare accounted for 81.8% of total health spending in 2016. The main channels of public spending are Medicare[1], Affordable Care Act (ACA)[2] subsidies and Medicaid[3][d]
- Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older. Medicaid is a health coverage program for Americans with low income and resources. The Affordable Care Act (ACA), is a US law aimed at increasing access to affordable health insurance for Americans
- According to the Centers for Medicare & Medicaid Services (CMS), Medicare spending is likely to grow at an average rate of 7.4% during 2017-27, while spending on Medicaid and private prepaid plans will average 5.5% and 4.8%respectively(d)
- The ACA expanded Medicaid to make policies affordable, by extending the fund to subsidies nearly all low-income individuals with incomes at or below 138% of the poverty level[d]

### Privately funded healthcare:

- Approximately 69.3% of Americans aged under 65 had private health cover in 2017[d]
- Those without employer policies buy their own insurance, many through ACA
- A major concern is the rapid increase in deductibles on health insurance. Deductibles on employer-based health plans almost quadrupled during 2007-19, to an average of US$1,350 per person[d]
- The five biggest commercial health insurers are UnitedHealth, Anthem, Aetna, Cigna and Humana, together representing about 43% of the total insured US population[d]

## Rheumatoid Arthritis in the US:

### Patients:

- Prevalence: 0.6%[e]
- Women are about two to three times more likely to develop RA than men[f]

### Physicians:

- There are 6,013 providers in the US adult rheumatology workforce, representing a corresponding clinical FTE of 5,415[a]. This includes physicians, nurse practitioners (NPs), and physician assistants (PAs). 4,997 of these 5,415 FTE are rheumatologists, 190 PAs and 228 NPs

### Guidelines:

- RA: 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis

### Patient advocacy groups (PAGs)/Medical societies:

- American College of Rheumatology (ACR)
- Arthritis Foundation
- Rheumatoid Arthritis Foundation

**Notes**: (1) Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older (2) The Affordable Care Act (ACA), commonly known as Obamacare, is a US law aimed at increasing access to affordable health insurance for Americans (3) Medicaid is a health coverage program for Americans with low income and resources which is jointly funded by the federal government and the states

**References**: (a) Battafarano, D. F. et al. 2015 American College of Rheumatology Workforce Study: Supply and Demand Projections of Adult Rheumatology Workforce, 2015–2030. Arthritis Care Res, 70: 617-626. doi:10.1002/acr.23518 (b) Barhamain AS et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms, Open Access Rheumatol. 2017 Jul 28;9:139-150 doi: 10.2147/OARRR.S138830 (c) Newman ED et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, Arthritis Care Res (Hoboken). 2015 Apr;67(4):546-53 doi: 10.1002/acr.22479 (d) The Economist Intelligence Unit Healthcare Industry Report 2nd Quarter 2019 (e) Sana Iqbal et al. Review of Rheumatoid Arthritis. US Pharm. 2019;44(1)(Specialty&Oncology suppl):8-11(f) https://www.healthline.com/health/rheumatoid-arthritis/facts-statistics-infographic#4 (Accessed on 2 September 2019)

# The Rheumatology Clinic

## Harbor-UCLA Medical Center

**Type**
- The medical center is part of the Los Angeles County Department of Health Services (an integrated system of health centers, community clinics and hospitals)

**Core services**
- The center offers primary care services, such as pediatric, internal medicine and gynecology services. It also provides specialty care services in fields such as neurology, cardiology, rheumatology, dermatology, oncology, orthopedics and ophthalmology
- Harbor-UCLA Medical Center also conducts research in fields such as reproductive endocrinology, genetics, infectious diseases, trauma, and respiratory medicine

**Size**
- The 72-acre facility is composed of an 8 story, 533 bed hospital and a 52,000 square foot Primary Care and Diagnostic Center
- The hospital has 300 full-time faculty staff and over 450 part-time / voluntary staff. Nearly 500 residents and fellows are completing their graduate medical education training at the hospital[a]

**Locations**
- The center is located in West Carson in the Los Angeles county of California

**Population served**
- The center provides healthcare services to over 700,000 residents in the greater South Bay area of Los Angeles County[b]
- The medical center is situated in an ethnically diverse area with an underserved population (where various socio-economic factors may limit access to medical care)

**Demographics**
- 70% of the population is Hispanic (mostly first generation immigrants from Central America and Mexico). Approximately 20% of the population is black and the remaining minority is a mix of people from the Pacific Islands and Asia

## The Rheumatology Clinic

**Services**
- The center offers outpatient and emergency care services. For RA patients, this includes orthopedic surgery and rehabilitation and physiotherapy services. Many patients in the rheumatology clinic are also involved in clinical trials

**Funding and Resources**
- Harbor-UCLA is a member of the Los Angeles County Department of Health Services (DHS).The DHS has an annual operating budget of $4.3 billion[c]
- The Harbor-UCLA Medical Center is also an NIH-funded clinical research center
- The Lundquist serves as an umbrella organization for the faculty at Harbor-UCLA and provides financial and academic resources for staff interested in research

**Collaborations**
- In addition to serving as a major training site for medical students from the UCLA School of Medicine, Harbor-UCLA also works with staff and medical students from the Charles R. Drew University of Medicine and Science[b]
- Harbor-UCLA is also home to the Lundquist Institute, one of the largest independent, not-for-profit biomedical research institutes in the United States[b]

**PCP integration**
- The center caters for a large area and is affiliated with 100-120 satellite primary care clinics and hospitals. These hospitals and clinics refer patients to the center through an e-consult platform (a website where PCPs submit a request, outline their questions and refer patients to the center)
- The center determines whether the referred patient is appropriate for treating at the center and outlines the timeframe for the patient to be seen in the clinic

**References**: (a) Harbor-UCLA History. Harbor-UCLE Website http://www.harbor-ucla.org/about/history/ Accessed 1 October 2019 (b) Harbor-UCLA Medical Center. Health Services Los Angeles County Website. http://dhs.lacounty.gov/wps/portal/dhs/harbor Accessed 1 October 2019 (c) About DHS. Health Services Los Angeles County Website. http://dhs.lacounty.gov/wps/portal/dhs/moredhs/aboutus/ Accessed 1 October 2019

# The Rheumatology Clinic (cont.)



## Overview of Services

| Service Division | Outpatient clinic | Infusion center | Urgent care clinic |
|---|---|---|---|
| **Duration of stay** | 45 minutes for first consultation<br>20-30 minutes for follow-up consultation | Between 1 – 6 hours (depending on the therapy being provided) | Between 2 – 3 hours (including evaluations by the Urgent Care and Rheumatology team) |
| **Hours of availability** | Monday – Friday (08:00-17:00 hours) | Monday – Friday (07:00-17:00 hours) | Mon, Wed, Thu, Fri (08:00 – 21:00 hours)<br>Tuesday (09:00-21:00 hours)<br>Saturday (08:00-14:00 hours) |
| **No. of patients seen** | RA: 750 patients per year<br>Lupus: 530 patients per year<br>Spondyloarthritis: 120 patients per year<br>Scleroderma: 70 patients per year<br>Inflammatory myopathy: 45 patients per year<br>Gout: 60 patients per year<br>Miscellaneous systemic autoimmune diseases (e.g., ANCA vasculitis, GCA, PMR): 120 patients per year | ~100 patient visits per month for IV biologics or csDMARDs | ~50 visits a month |
| **Patient type catered to** | Adult (>18) patients with RA of all severity grades (mostly severe upon arrival) | Primarily run by the oncology department but also caters to patients with RA | Patients with severe RA in need of urgent care |
| **Services offered** | — X-rays<br>— Lab tests<br>— Physiotherapy<br>— Clinical trials | — Intravenous administration of medication | — Treatment of acute orthopedic and musculoskeletal complaints |

# The team

## Core team profiles

- 2 rheumatologists
- 1 doctor of nursing practice
- 1 research nurse
- 1 nurse practitioner
- 1-2 registered nurses
- 1 clinical research coordinator
- 3-5 fellows

## Key features of the care delivery team

### Integrated healthcare system

- The team only accepts referrals from PCPs within their own ecosystem (i.e., patients with insurance accepted by the hospital) through an e-consult IT platform. Inclusion / exclusion criteria are used to spot signs of inflammation or specific symptoms and refer patients to the appropriate clinic

### Focus on HCP education and training

- The team includes rheumatology trainees who are fully involved in the diagnosis and management of RA. The trainees are encouraged to conduct the main interview with patients, allowing trainees to gain experience with and learn from patients

### Thorough monitoring of RA comorbidities

- Comorbidities are actively managed with the approval of (or in collaboration with) PCPs. The center uses multiple PROs to regularly monitor comorbidities and refer patients to appropriate specialists when necessary

## Affiliate team profiles

- 5-6 physiotherapists (shared between outpatients and inpatients)
- Dermatologists (joint-clinics with rheumatology)

## Governance and processes

### Protocols:

- 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis
- European League Against Rheumatism (EULAR) recommendations

### Patient records:

- Cerner electronic medical records (EMR) are used

### Pharmacy:

- There are 2 separate outpatient pharmacies on campus

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Appendix - Center Reports

# Overview of interventions in place for RA

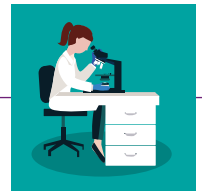
Case study available

## Awareness & Prevention
Symptom identification

### Use of IT-platform to enable referrals
- The center is affiliated with 100-120 satellite primary care clinics and hospitals. These hospitals and clinics refer patients to the center through an e-consult platform (a website through which PCPs submit a request, outline their questions and refer patients to the Harbor-UCLA Medical Center)
- The PCPs fill in a questionnaire on the e-consult platform. Inclusion / exclusion criteria are used to spot signs of inflammation / specific symptoms and refer patients to the appropriate clinic
- The center determines whether the referred patient is appropriate for treatment at the center and outlines the timeframe for the patient to be seen in the clinic (usually within 2 to 4 weeks)

### Urgent care referrals
- When the clinic is very busy and no appointment slots are available, patients (especially those in need of immediate attention) are advised to visit the urgent care clinic
- The patients inform the urgent care team that they need immediate attention and that they were unable to book an appointment. The urgent care team calls the rheumatologist directly to immediately tend to the patient

## Referral, Diagnosis & Treatment initiation
In secondary care



### Time spent with patients
- A rheumatologist sees each patient accompanied by a trainee (who records the patient's history)
- The rheumatologists spend 5-10 minutes with every patient (or longer, depending on the severity of the condition), however the main interview is conducted by a trainee
- The trainee spends up to 45 minutes with each patient during their first consultation, and spends 20-30 minutes with them during follow-up appointments

### Clinical trials
- Patient profiles are screened via the EMR for suitability to join ongoing studies. Physicians then discuss any clinical trial opportunities with patients during their next visit. The center has 5 ongoing RA-related studies

### Preparation of patient charts in advance
- Every healthcare provider has a list of the patients they will see each day. This allows the trainees to prepare their charts in advance, so they can spend more time having meaningful interactions with patients

### Lab tests before appointments
- Patients complete their lab tests either on the day of the visit or a couple of days prior to the visit (depending on the nature of the test). This ensures that all the necessary data is available prior to their consultation

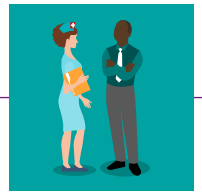
## Treatment and Management
Medical management

### Focus on Patient Reported Outcomes (PROs) (see case study page 176)
- The center focuses on measuring patient reported outcomes (PROs) and has been consistently collecting them for over 10 years
- The PROs are used to understand treatment outcomes and improve patient management
- At each visit to the practice, patients are asked to complete a comprehensive questionnaire which touches on functional limitations, RA-specific knowledge and mental health (including depression)

### HCP education
- The team at the rheumatology clinic includes rheumatology trainees who are fully involved in the diagnosis, treatment and management of RA
- The rheumatologists only spend 5-10 minutes with every patient. The main interview is conducted by a trainee who spends up to 45 minutes with the patient
- This allows them to gain experience with and learn from patients, whilst simultaneously increasing how much time patients have with a physician

Interventions

## Treatment and Management
Non-medical management



### Physiotherapy (PT) and occupational therapy (OT)

- The rheumatologists can refer patients to physiotherapy and occupational therapy teams
- The PT center has 6-7 physiotherapists available who can offer PT sessions 4-8 weeks after the patient's initial rheumatologist consultation
- There is also an investigation underway at the center (funded by a major pharmaceutical company) that is looking at an integrated approach for RA treatment, which includes PT evaluation, regular visits and exercises. The patients participating are seen by the physiotherapist on scheduled visits

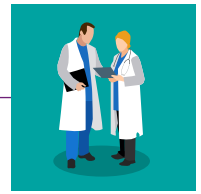
### Patient-Physician relationship (see case study page 178)

- Center staff take steps to build relationships with patients by spending adequate time with them and using languages the patients are comfortable with
- The center has access to 35+ interpreters who are available over video or phone To assist with consultations
- Patients have the option to complete their patient questionnaire in a language of their choice

### Patient education

- The center has patient assistance programs and provides patients with RA educational materials
- Patients are also taught how to self-administer certain medications and injections

## Medical care & Follow-up
Monitoring of chronic disease/flare up



### Follow-up

- Patients remain seen by the rheumatology clinic indefinitely (patients are not sent back to their PCPs to manage their RA)
- Follow-up frequency depends on how well the patient's RA is controlled (based on ACR & EULAR recommendations)
- Stable patients are seen every 3 to 6 months, while those requiring frequent care are seen once a month

### Phone appointment

- Well controlled patients can opt for a phone appointment, where their queries are recorded and a note is generated into the system
- This method is quicker for patients who may want to ask questions about medication refills / continuing their dosage (compared to visiting the center in person)
- The phone appointment can be billed as a nurse or a physician visit
- Patients also have the option to call the office of the rheumatologist with any questions which may arise

### Urgent care clinic

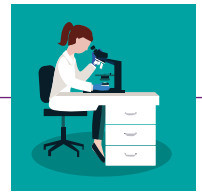
- Patients in need of immediate care can visit the urgent care clinic if they are unable to book an appointment The urgent care team then calls the rheumatologist directly for treatment

# Overview of interventions in place for RA comorbidities

Case study available

## Awareness & Prevention
Symptom identification

## Referral & Diagnosis
In secondary care



## Treatment and Management
Medical management

**Interventions**

### E-consult to filter patients

- Due to rheumatologist capacity constraints (only 2 full-time attending physicians), the center has inclusion / exclusion criteria to accept / deny patients through e-consult
- In order for a request to be submitted on e-consult, patients / referrers are required to complete a form with details of their disease / symptoms
- This system filters out patients who do not require an appointment with a rheumatologist at the center. For example, gout cases are only accepted when they are severe

### Comorbidity management (see case study page 174)

- The center thoroughly screens patients for RA comorbidities
- Comorbidities are actively managed with the approval of (or in collaboration with) PCPs and comorbidity specialists
- Rheumatologists at the center participate in research related to RA comorbidities as they have diverse experience in RA comorbidity treatment and management
- RA comorbidities which are screened and treated include::
  - **Cardiovascular**: The center regularly screens for cardiovascular (CVS) risk factors and atherosclerotic cardiovascular disease risk (ASCVD) is calculated for every patient
  - **Pulmonary**: The rheumatologists screen patients for pulmonary diseases such as pulmonary fibrosis and TB infection, for example by performing chest x-rays
  - **Ophthalmological**: The center collaborates with ophthalmologists to treat and manage RA-related eye conditions, such as uveitis and scleritis
  - **Psychiatric or psychological**: Patient health Questionnaire–9 (PHQ-9) questionnaires are used to evaluate depression in patients with RA(a). Patients who are considered to be at a high risk of suicide based on the results are referred to the psychiatry department

### Rheumatology-Dermatology combined clinic

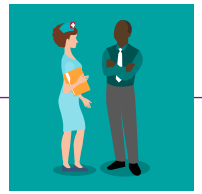
- There is a Rheumatology-Dermatology combined clinic for patients with autoimmune diseases
- The center has attending physicians from both rheumatology and dermatology who see patients together (~20 patients are seen in each sitting)
- The aim of the clinic is to see patients together and enable shared decision-making (e.g., for treatment plans). The combined clinic also helps to facilitate research projects, as both departments encourage research and have wet lab facilities

### Fetal-maternal and rheumatology clinic

- This clinic takes place once a month. It tends to an average of 5 to 7 patients and is designed for patients with autoimmune diseases who are pregnant or are envisioning to conceive and need advice

**References**: (a) Levis B, Benedetti, Thombs BD, et al. Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis. BMJ. 2019 Apr 9;365:l1476. doi: 10.1136/bmj.l1476.

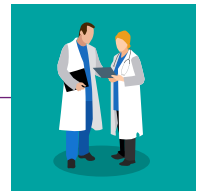
## Treatment and Management
Non-medical management



### Patient forums

- Patient forums, including one specific to RA, are held at the center and are open to everyone
- The forums are organized every 6 months and are generally sponsored through the RA Foundation (for those related to RA)
- The forums help to increase awareness of RA and include a themed discussion, lecture and question & answer session

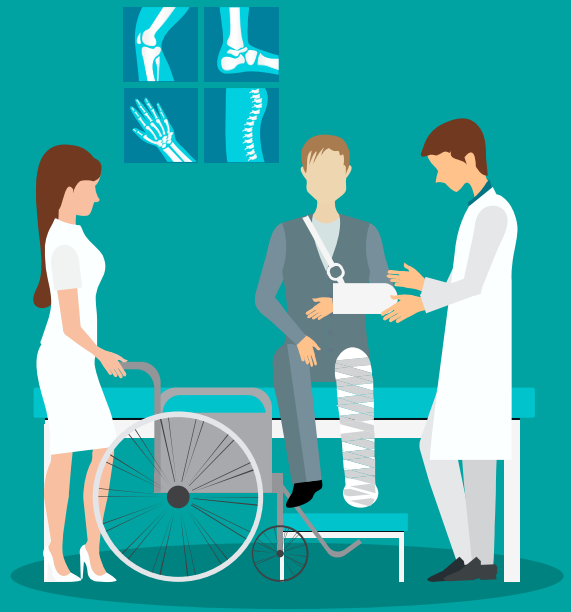
## Follow-up
Monitoring of chronic disease/flare up



### ATACC-RA program (see case study page 179)

- The Lundquist Institute at Harbor-UCLA participates and collaborates in longitudinal national and international cardiology studies, such as the ATACC-RA program (A TransAtlantic Cardiovascular risk Calculator for Rheumatoid Arthritis)
- ATACC-RA is a transatlantic consortium for cardiovascular disease in patients with RA. The center is currently the administrative center for ATACC-RA and an expert at the center has been elected the Lead of the Consortium
- It was founded in 2013 in order to develop an RA-specific cardiovascular disease (CVD) risk calculator

# These interventions have improved outcomes



"Most of our RA patients are soon under good control"

– Rheumatologist

KPMG

## How do you quantify the benefits in RA?

### Objective measures (KPIs):

- **Clinical Disease Activity Index (CDAI):** a composite index for assessing disease activity based on the summation of the swollen / tender joint count of 28 joints, along with a patient and physician assessment on a Visual Analogue Scale[a]
- **Disease Activity Score 28 (DAS28**): used to measure patient outcomes in RA by examining 28 joints for disease activity[b]

### PROs:

- Patient Global Assessment (PGA)[c], patient assessment of pain and fatigue (100mm Visual Analog Scale for Pain)[h]
- Health Assessment Questionnaire (HAQ)[d]
- Work Productivity and Activity (WPA) Impairment Questionnaire[e]

### Center routinely measures comorbidity outcomes by:

- Patient Health Questionnaire (PHQ-9)[f], Generalized Anxiety Disorder (GAD-7)[i]
- SF-36 Health Survey Questionnaire[g]
- All the above indices and questionnaires are used in clinical care and are also used to inform research activities

## How have these interventions improved patient outcomes?

### RA

- The center is able to keep patient disease activity under control and has a 7 year average DAS score of 2.68
- Patients find the RA clinic helpful and the clinic has a 90% attendance rate for appointments
- The clinic has the highest return rate of all patients across every subspecialty in the hospital

### Comorbidities:

- Thorough and regular monitoring of comorbidities helps to ensure patients are referred to the appropriate specialist, when necessary

**References**: (a) van Gestel AM, Haagsma CJ, van Riel PL, Validation of rheumatoid arthritis improvement criteria that include simplified joint counts., Arthritis Rheum. 1998 Oct; 41(10):1845-50 (b) van Riel PL, Renskers L. The Disease Activity Score (DAS) and the Disease Activity Score using 28 joint counts (DAS28) in the management of rheumatoid arthritis. Clin Exp Rheumatol. 2016 Sep-Oct;34(5 Suppl 101):S40-S44. Epub 2016 Oct 18. (c) Nikiphorou E, Radner H, Chatzidionysiou K, et al. Patient global assessment in measuring disease activity in rheumatoid arthritis: a review of the literature. Arthritis Res Ther. 2016 Oct 28;18(1):251. (d) Bruce B, Fries JF. The Health Assessment Questionnaire (HAQ). Clin Exp Rheumatol. 2005 Sep-Oct;23(5 Suppl 39):S14-8. (e) Wei Zhang, Nick Bansback, Annelies Boonen, et al. Validity of the work productivity and activity impairment questionnaire - general health version in patients with rheumatoid arthritis. Arthritis Res Ther. 2010; 12(5): R177. Published online 2010 Sep 22. doi: 10.1186/ar3141 (f) Levis B, Benedetti, Thombs BD, et al. Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis. BMJ. 2019 Apr 9;365:l1476. doi: 10.1136/bmj.l1476. (g) J. E. Brazier, R. Harper, N. M. Jones. Validating the SF-36 health survey questionnaire: new outcome measure for primary care. BMJ. 1992 Jul 18; 305(6846): 160–164. doi: 10.1136/bmj.305.6846.1602 (h) Hawker, G.A., Mian, S., Kendzerska, T. and French, M. (2011), Measures of adult pain: Visual Analog Scale for Pain (VAS Pain), Numeric Rating Scale for Pain (NRS Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), and Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP). Arthritis Care Res, 63: S240-S252. https://doi.org/10.1002/acr.20543 (i) Spitzer RL, Kroenke K, Williams JBW, Löwe B. A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. Arch Intern Med. 2006;166(10):1092–1097. doi:10.1001/archinte.166.10.1092

# How can care be improved?

## What is next for the center?

### Overview: Expansion of the rheumatology division

**Why?**

— Currently, the rheumatology division is small and only consists of 2 full-time attending physicians

— The rheumatologists spend the majority of their time attending to the clinic. Time for research and the inpatient service is therefore limited

**How?**

— The center plans to expand and generate sufficient revenues from grants or sponsorships to support clinical work done by other physicians. This would help the existing rheumatologists to acquire dedicated time for research

## What is next for the center?

### Overview: Establish itself as a center of excellence (CoE) for rheumatic diseases

**Why?**

— Most of the patient referrals are from the LA County catchment area. The center is aiming to expand its pool of patients

— There are several constraints in place as the system is dictated by insurance

**How?**

— The rheumatology division plans to increase recruitment and ensure that all research formally goes through the research institute

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# How can care be improved? (cont.)

## What advice would you give less specialized centers?

### Overview of advice: Establish multidisciplinary teams

**Why?**

— Multidisciplinary teams (MDTs) help to improve patient outcomes by enhancing collaboration and synergies between specialties

— MDTs allow patients to be assessed from different medical perspectives, which can lead to more appropriate treatments being prescribed and improved patient compliance

**How?**

— Hospitals should create teams containing a variety of specialists in order to provide more holistic RA care

### Overview of advice: Adhere to society recommendations (e.g., ACR, EULAR)

**Why?**

— Following society recommendations (such as ACR and EULAR) helps physicians to appear more human / reassuring in their interactions with patients

— Patients are more likely to trust and adhere to the physician's recommendations, as they feel the physician understands the impact of the disease on the patient's life

**How?**

— Spread awareness about the guidelines and recommendations which are available

— Encourage trainees and fellows to produce guidelines as part of their daily practice

### Overview of advice: Educate patients to help them understand the impact of the disease

**Why?**

— Educating patients and listening to their concerns helps to put the disease into perspective for both the physician and the patient

— This ensures the concerns of patients are heard and a concerted effort is made to address them

**How?**

— Physicians should spend sufficient time listening to a patient's concerns. They should also take time to explain the impact of the disease to the patient and educate them about treatment

— Patients should be treated as individuals and not just as data points

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# Case studies


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# Comorbidity management

## Overview

— The center thoroughly screens patients for RA comorbidities

— Comorbidities are also actively managed with the approval of (or in collaboration with) PCPs and comorbidity specialists

— Rheumatologists and their team members at the center participate in research related to RA comorbidities

## What is the rationale?

— There is a high prevalence of comorbidities and related risk factors among patients with RA. Comorbidities of RA include cardiovascular diseases, osteoporosis, obesity and depression[(a)]

— Thorough screening for comorbidities and a network of comorbidity specialists help rheumatologists at the center to manage RA related comorbidities[(b)]

## What are the key features of the intervention?

— The center aggressively screens patients for comorbidities such as depression (via PROs used at each patient consultation), cardiovascular diseases (via regular monitoring of lipid levels and blood pressure), interstitial lung disease (ILD), uveitis, etc.

— Comorbidities are actively managed with the approval of (or in collaboration with) PCPs and comorbidity specialists. The rheumatologists communicate regularly with these specialists and refer patients to them when needed

— Rheumatologists at the center consider themselves similar to PCPs, as they see patients the most regularly

— Collaboration and communication with PCPs takes place through the center's electronic medical record (EMR)

— Physicians at the center participate in research related to RA comorbidities

## What are the activities undertaken?

### Cardiovascular comorbidities

— Patients with RA exhibit a higher prevalence - and different composition – of occult coronary plaque compared with age and gender-matched controls. This can lead to long-term cardiovascular events (CVEs) in RA patients(c)

— The center regularly screens for cardiovascular (CVS) risk factors, including atherosclerotic cardiovascular disease risk (ASCVD) which is calculated for every patient

— The center has performed extensive research on cardiovascular risk events in patients with RA and the rheumatologists are experienced providers of cardiovascular care

— Learnings from research are translated into clinical practice, as patient treatments may be altered based on the results of studies. For example, 29 out of 150 CVS patients at the center had primary CV prevention started or escalated based on results of a baseline occult coronary atherosclerosis evaluation

### Pulmonary comorbidities

— The rheumatologists screen for pulmonary diseases such as pulmonary fibrosis and tuberculosis (TB) infection, for example by performing chest x-rays (in addition to simply asking patients about their symptoms). Patients are referred to the pulmonology division if required

— A number of RA patients at the center also have ILD. The rheumatology clinic treats ILD cases, however may call on the pulmonology division for advice / guidance as required

**References**: (a) Dougados M, Soubrier M, Antunez A, et al. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). Ann Rheum Dis. 2014 Jan;73(1):62-8. doi: 10.1136/annrheumdis-2013-204223. Epub 2013 Oct 4. (b) KPMG interviews (c) Karpouzas G, Ormseth S, Hernandez E et al. Coronary plaque progression in rheumatoid arthritis: role of inflammation, cardiac risk factors, medications and impact on event risk. Ann Rheum Dis, volume 78, supplement 2, year 2019, page A1364

## What are the activities undertaken? (cont.)

### Ophthalmological comorbidities

- For RA-related eye complications such as uveitis and scleritis, rheumatologists at the center collaborate with ophthalmologists to ensure an appropriate specialist treatment is prescribed
- The ophthalmologist performs a physical examination of the patient, however the treatment itself is delivered by the rheumatologist (who coordinates the medication)

### Psychiatric or psychological comorbidities

- Patient Health Questionnaire 9 (PHQ-9) is used to evaluate depression in patients with RA[(a)]
- General Anxiety Disorder-7 (GAD-7) is used to monitor anxiety in patients with RA
- Patients who are considered to be at a high risk of suicide based on the results are referred to the psychiatry department
- The questionnaires are geocoded, so patients can find sources of psychological support near their homes

## Benefits

### Benefits to patients:

- Potential to improve patient outcomes following shared decision-making between specialists
- May improve patient access to specialists

### Benefits to HCPs:

- Rheumatologists may see patients more than their PCP and can assume more responsibility for their treatment
- Opportunity for increased collaboration between rheumatologists and PCPs due to the manner in which they share patients

## Challenges

- For certain RA comorbidities, such as pulmonary diseases, there are limited formal guidelines for screening for and treating them
- Comorbidity specialists may not agree with the treatment(s) prescribed by the rheumatology clinic

> For eye complications such as uveitis and scleritis, I collaborate with the hospital's ophthalmologists
>
> - Rheumatologist

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References: (a) Withers M, Moran R, Nicassio P, et al. Perspectives of vulnerable U.S Hispanics with rheumatoid arthritis on depression: awareness, barriers to disclosure, and treatment options. Arthritis Care Res (Hoboken). 2015 Apr;67(4):484-92. doi: 10.1002/acr.22462.

# Focus on Patient Reported Outcomes (PROs)

## Overview

— The center focuses on measuring patient reported outcomes (PROs) and has been consistently collecting them for over 10 years

— The PROs are used to understand RA treatment outcomes and improve patient management

## What is the rationale?

— The literature suggests there is a growing interest in the assessment of RA symptoms from the patient's perspective[a]

— PROs have been found to be as or more informative than physician-assessed measurements[a]

— The information from PROs is organized into quantitative data sets and used to make treatment decisions, as well as assess the prognosis and most probable outcomes for the patients[a]

## What are the key features of the intervention?

— Patient-reported outcomes (PROs) typically involve patients completing a form (i.e., questionnaire, scales, self-administered index (SAI) diagram) to objectively evaluate the disease in question[a]

— At each visit to the clinic, RA patients are asked to complete a comprehensive questionnaire which touches on functional limitations, RA-specific knowledge and mental health (e.g., depression)

— The center has been collecting PROs consistently for the last 10 years, which they use to improve patient management and inform studies

## What are the key features of the intervention? (cont.)

— Some of the PROs measured by the center include:

- Health Assessment Questionnaire (HAQ)
- Patient Health Questionnaire (PHQ-9)
- SF-36 Health Survey Questionnaire (both mental health and physical function domains)
- Patient Global Assessment (PGA)
- General Anxiety Disorder-7 (GAD-7)
- Pain 0-100mm Visual Analogue Scale (VAS)
- Fatigue 0-100mm VAS
- Work Productivity and Activity Impairment (WPAI)

## What are the activities undertaken?

— PROs are collected at each patient visit and patients have the option to complete the questionnaire in the language of their choice. Patients are allowed as much time as they need to complete the questionnaire

— Patients generally arrive one hour before their appointment in order to speak with the nurses, who help the patients to answer all the questions. The study coordinator is also present in clinic to answer any questions the patients may have and to provide quality control of the completed questionnaires

— Study patients are required to fill in an additional questionnaire at the research center

References: (a) Amaya-Amaya J, Botello-Corzo D, Calixto OJ, et al. Usefulness of Patients-Reported Outcomes in Rheumatoid Arthritis Focus Group. Arthritis. 2012;2012:935187. doi: 10.1155/2012/935187. Epub 2012 Sep 28.

## What are the activities undertaken? (cont.)

- Nurses explain to the patients how the information they provide is collected, analyzed and interpreted by the center's physicians
- The physician is 'blind' regarding the PRO results until after the consultation i.e. the physician does not see the answers the patient submitted until after the consultation, to avoid being biased in their assessment
- Afterwards, the physician considers the PROs and, if needed, follows up with the patient on any particular point(s)
- The completed patient questionnaire is scanned and the details are fed into a database and research computer. A copy of each questionnaire is always kept online for reference
- The database is maintained by a bio-statistician who is responsible for quality control
- The results for the questionnaire are cross referenced with the EMR
- Patient Health Questionnaire 9 (PHQ-9) is used to evaluate depression in patients with RA[(a)] Patients who are deemed to be at a high risk of suicide are immediately referred to the psychiatry department

## Benefits

- By considering the patient's perspective, PROs can help to understand RA treatment outcomes and improve patient management
- Physicians may more easily identify patients whose disease is not well controlled or RA comorbidity symptoms, and refer them to an appropriate specialist
- Ability to monitor patient outcomes for chronic diseases over time, as they provide data in a standardized and comparable format
- Standardized PROs can help monitor patient progress even if they switch care settings

## Challenges

- It can be logistically challenging to standardize outcome measures across different stakeholders (ensuring that the same PROs are collected for patients with RA across different primary and secondary care settings)

## What else could be done?

- Implement learnings from academic studies regarding the relationship between PROs and treatment outcomes[(a)(b)(c)(d)(e)(f)]

References: (a) Withers M, Moran R, Nicassio P, et al. Perspectives of vulnerable U.S Hispanics with rheumatoid arthritis on depression: awareness, barriers to disclosure, and treatment options. Arthritis Care Res (Hoboken). 2015;67(4):484-92. doi: 10.1002/acr.22462; (b) Karpouzas GA, et al. Correlates and predictors of disability in vulnerable US Hispanics with rheumatoid arthritis. Arthritis Care Res (Hoboken) 2012;64(9):1274-81; (c) Karpouzas GA, et al. Trends in Functional Disability and Determinants of Clinically Meaningful Change Over Time in Hispanic Patients With Rheumatoid Arthritis in the US. Arthritis Care Res (Hoboken). 2017;69(2):294-298; (d) Withers MH, et al. Identification and Treatment Optimization of Comorbid Depression in Rheumatoid Arthritis. Rheumatol Ther. 2017;4(2):281-291. (e) Karpouzas GA, et al. Discordant patient-physician assessments of disease activity and its persistence adversely impact quality of life and work productivity in US Hispanics with rheumatoid arthritis. RMD Open. 2017;3(2); (f) Karpouzas GA, et al. Latent profile analysis approach to the relationship between patient and physician global assessments of rheumatoid arthritis activity. RMD Open. 2018;4(1)



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> I utilize different things when I evaluate a patient's global assessment. I ask about fatigue, etc.
>
> - Rheumatologist

# Patient-physician relationship

## Overview

— Patients at the center are ethnically diverse and speak a number of different languages

— The center takes steps to build relationships with patients by spending adequate time with them and using the patients' preferred languages

## What is the rationale?

— Patients at the center are ethnically diverse and speak a number of languages. A large portion do not speak English.

— Speaking to patients in their own language removes a communication barrier and patients are more likely to trust the treatments / recommendations received[(a)]

— Medication adherence is instrumental for the successful management of rheumatoid arthritis (RA) with remission the ultimate goal[(b)]

## What are the key features of the intervention?

— The center tries to engage with patients in a language they are comfortable speaking, in order to develop a trusting patient-physician relationship

— The center has access to 35+ interpreters who are available over video or phone

— Patients are given a multi-lingual questionnaire (PROs collection) so they can complete it in their preferred language

## What are the activities undertaken?

— Every physician at the center has a list of the patients they will see each day. This allows trainees to prepare their charts in advance, so they can spend more time with patients and ensure their interactions are meaningful

— Patients complete a patient questionnaire before the consultation in a language of their choice

— Patients complete their lab tests either on the day of the visit or a couple of days prior to the visit, depending on the nature of the test. This ensures all the necessary data is available prior to the consultation

— Physicians discuss with patients:

- The questionnaire answers with patients
- The possible risks and side effects of therapies before treatment is initiated (as well as explaining why they were prescribed). This can help with patient treatment adherence

— As a result, patients may feel physicians have a clear understanding of the impact of the disease on their quality of life

## What are the outcomes so far?

— Patients find the clinics helpful and the clinic has a 90% compliance rate for appointments

— The clinic has the highest return rate of all patients across every subspecialty in the hospital. 90% of patients stay with the clinic for life (excluding those who lose their insurance cover)

References: (a) KPMG interviews (b) Karpouzas G, Hernandez E, Strand V et al. Medication necessity and concern beliefs are distinct, interactive predictors of treatment adherence in rheumatoid arthritis. Ann Rheum Dis, volume 78, supplement 2, year 2019, page A1113 DOI: 10.1136

# ATACC-RA program

## Overview

— Harbor-UCLA is a participating center and collaborator for ATACC-RA (A TransAtlantic Cardiovascular risk Calculator for Rheumatoid Arthritis)

— ATACC-RA is a transatlantic consortium for cardiovascular disease in patients with RA

— It was founded in 2013 in order to develop an RA specific CVD risk calculator


**ATACC-RA logo**

## What is the rationale?

— Patients with Rheumatoid Arthritis (RA) have a higher than average risk of developing and dying from cardiovascular disease, including heart attacks, strokes, and heart failure[a]

— The cardiovascular risk of patients with RA is underestimated by risk algorithms / calculators developed for the general population, for example The Framingham Risk Score (commonly used in the United States) or HeartSCORE (commonly used in Europe)[a]

— Physicians have expressed a need for an RA-specific cardiovascular risk calculator, but no study or center in the world has sufficient data to develop such an algorithm with any accuracy[a]

— The ATACC-RA consortium was formed in February 2013 with the main initial objective to develop an RA-specific cardiovascular risk calculator suitable for use in many countries[a]

## What are the key features of the intervention?

### Overview of ATACC-RA

— ATACC-RA is a transatlantic consortium for cardiovascular disease in patients with RA

— It was founded in 2013 in order to develop an RA specific CVD risk calculator

## What are the key features of the intervention? (cont.)

— The ATACC-RA consortium has data from:
- 5685 patients with RA
- Almost 35 000 patient years of follow-up
- 476 evaluable cardiovascular events[a]

### Role of Harbor-UCLA

— The Lundquist Institute at Harbor-UCLA is currently the administrative center for ATACC-RA. The lead rheumatologist was also the elected leader of the ATACC-RA consortium[b]

— The Harbor-UCLA RA patient cohort contributing to ATTAC-RA involves 150 individuals fulfilling the 2010 criteria for the diagnosis of RA[c][d]

— The Harbor-UCLA RA patient cohort was established in 2010 and is part of an expanded RA prevalence cohort of 650 patients with regular follow-up at the adult rheumatology clinic(d). The center has also contributed 600 patients to the SURF-RA (SUrvey of cardiovascular Risk Factor in patients with RA) Interrogation under the auspices of ATACC-RA

## What are the outcomes so far?

— Investigators in the ATACC-RA consortium have collectively contributed over 400 peer-reviewed publications in the field of cardiovascular comorbidity of rheumatic diseases

— This is possibly the largest coordinated knowledge and experience sharing initiative in this field by a single group of collaborators[a]

References: (a) About ATACC-RA. ATACC-RA website. http://atacc-ra.com/about-atacc-ra/ Accessed 3 October 2019; (b) George A Karpouzas. ATACC-RA website. http://atacc-ra.com/collaborators/participating-centers/harbor-ucla-medical-center/george-a-karpouzas/ Accessed 3 October 2019; (c) 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. 2010 Sep;62(9):2569-81. doi: 10.1002/art.27584; (d) Cohort description. ATACC-RA website. http://atacc-ra.com/collaborators/participating-centers/harbor-ucla-medical-center/description-of-cohort/ Accessed 3 October 2019





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# Hospital for Special Surgery

**New York, United States of America**

September 2019

**kpmg.com/uk**

# Summary

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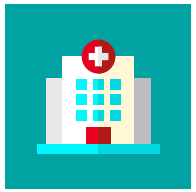

## Context

### Top-ranked orthopedic center

— The Hospital for Special Surgery (HSS) is an academic medical center focused on musculoskeletal health. The hospital has centers located across New York, New Jersey, Florida, Connecticut and Colorado

— It serves more than 139,000 pediatric and adult patients surgically and non-surgically for conditions including joint paint, trauma and sports injuries, osteoarthritis, rheumatoid arthritis, spinal disorders, and other musculoskeletal conditions

— For 10 consecutive years (2010-2019), HSS has been ranked as the No. 1 hospital in the US for orthopedics. It is also ranked as the third best hospital in the US for rheumatology[(a)]

### Largest rheumatology division and established external networks

— HSS is the largest rheumatology division in the US. Its physicians hold faculty appointments at Weill Cornell Medicine and medical staff appointments at New York Presbyterian Hospital. As a result, there are efficient working relationships between the three institutions, providing patients with seamless care

### EPIC integrated health system

— HSS uses the EPIC integrated electronic health system which enables the hospital and primary care staff to access up-to-date patient records at all times

## Key strengths in the delivery of RA care

### Multidisciplinary approach to RA care

— Multidisciplinary teams (MDT) consisting of rheumatologists, physio- and occupational therapists, pharmacists, nurses, etc. ensure a holistic approach to the management of RA

### Management of comorbidities

— HSS has several activities in place to support effective management of comorbidities, including a network of comorbidity specialists, a rehabilitation unit, a weight management clinic, a patient education program and support group

— A thorough review of patients' comorbidities is performed as part of perioperative management. HSS also has one of the lowest rates of surgical site infection in New York[(b)]

### Patient education and knowledge sharing

— HSS promotes sharing of knowledge through weekly grand rounds and journal club meetings between team members. Resources for patient education are also available on the center's website

### Research

— Rheumatologists and other health professionals take an active part in research activities with a large number of industry as well as investigator-initiated studies

## Key challenges faced in delivery of RA care

### Access to care

— Providing quality care to patients with limited funding is a challenge. Some services such as physiotherapy and occupational therapy may not always be covered by a patient's insurance, which limits the potential improvements in day to day living activities

### Limited number of guidelines

— There are a limited number of guidelines specific to management of RA comorbidities

**References**: (a) Best Hospitals for Orthopedics. U.S News & World Report [online] https://health.usnews.com/best-hospitals/rankings/orthopedics Accessed 18 September 2019; (b) Hospital for Special Surgery: specialists in mobility. Horizon 2009 Annual Report. Spring 2010 [pdf] https://www.hss.edu/files/spring-2010-horizon.pdf Accessed 16 September 2019

# RA in the US: Healthcare system overview

## RA challenges in the US healthcare system:

- It is estimated that there will be a significant shortage of rheumatologists in the US by 2030. In 2015, the demand exceeded the supply of clinical providers by 700 (12.9%). This imbalance is expected to grow to a deficit of 4,133 providers (102%) by 2030[(a)]
- On an average, the lag time between a patient first experiencing symptoms and being referred to a rheumatologist is over 5 months in the US[(b)]
- Measurement of quality has been noted by the American College of Rheumatology to be essential to the care of patients with rheumatic disease. The abundance of quality measures can cause measurement fatigue and a discrepancy between consistency of measures routinely used in clinics[(c)]

## US healthcare system overview:

### Publically funded healthcare:

- Government spending on healthcare accounted for 81.8% of total health spending in 2016. The main channels of public spending are Medicare[1], Affordable Care Act (ACA)[2] subsidies and Medicaid[3(d)]
- Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older. Medicaid is a health coverage program for Americans with low income and resources. The Affordable Care Act (ACA), is a US law aimed at increasing access to affordable health insurance for Americans
- According to the Centers for Medicare & Medicaid Services (CMS), Medicare spending is likely to grow at an average rate of 7.4% during 2017-27, while spending on Medicaid and private prepaid plans will average 5.5% and 4.8% respectively[(d)]
- The ACA expanded Medicaid to make policies affordable, by extending the fund to subsidies nearly all low-income individuals with incomes at or below 138% of the poverty level[(d)]

### Privately funded healthcare

- Approximately 69.3% of Americans aged under 65 had private health cover in 2017[(d)]
- Those without employer policies buy their own insurance, many through ACA
- A major concern is the rapid increase in deductibles on health insurance. Deductibles on employer-based health plans almost quadrupled during 2007-19, to an average of US$1,350 per person[(d)]
- The five biggest commercial health insurers are UnitedHealth, Anthem, Aetna, Cigna and Humana, together representing about 43% of the total insured US population[(d)]

## Rheumatoid Arthritis in the US:

### Patients:

- Prevalence: 0.6%[(e)]
- Women are about two to three times more likely to develop RA than men[(f)]

### Physicians:

- There are 6,013 providers in the US adult rheumatology workforce, representing a corresponding clinical FTE of 5,415[(a)]. This includes physicians, nurse practitioners (NPs), and physician assistants (PAs). 4,997 of these 5,415 FTE are rheumatologists, 190 PAs and 228 NPs

### Guidelines:

- RA: 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis

### Patient advocacy groups (PAGs)/Medical societies

- American College of Rheumatology (ACR)
- Arthritis Foundation
- Rheumatoid Arthritis Foundation

**Notes**: (1) Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older (2) The Affordable Care Act (ACA), commonly known as Obamacare, is a US law aimed at increasing access to affordable health insurance for Americans (3) Medicaid is a health coverage program for Americans with low income and resources which is jointly funded by the federal government and the states

**References**: (a) Battafarano, DF. et al. 2015 American College of Rheumatology Workforce Study: Supply and Demand Projections of Adult Rheumatology Workforce, 2015–2030. *Arthritis Care Res*, 70:617-626. doi:10.1002/acr.23518; (b) Barhamain AS, et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms. *Open Access Rheumatol.* 2017;28(9):139-150 doi: 10.2147/OARRR.S138830 (c) Newman ED, et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, *Arthritis Care Res (Hoboken)*. 2015;67(4):546-53 doi: 10.1002/acr.22479; (d) The Economist Intelligence Unit Healthcare Industry Report 2nd Quarter 2019; (e) Iqbal S, et al. Review of Rheumatoid Arthritis. US Pharm. 2019;44(1)(Specialty&Oncology suppl):8-11; (f) Rheumatoid Arthritis by the Numbers: Facts, Statistics, and You. What is Rheumatoid Arthritis? [online] https://www.healthline.com/health/rheumatoid-arthritis/facts-statistics-infographic#4 Accessed: 2 September 2019

# The Rheumatology division

## The Hospital for Special Surgery (HSS) has the largest rheumatology department in the US

### Hospital for Special Surgery (HSS)

| | | | |
|---|---|---|---|
| **Type** | — HSS is an academic medical center focused on musculoskeletal health | **Locations** | — The hospital has centers located across New York, New Jersey, Florida, Connecticut and Colorado |
| **Core services** | — Orthopedic services, rheumatology, medical specialties (such as anesthesiology, neurology, pathology, physiatry, radiology and endocrinology), ambulatory care, rehabilitation and wellness services (physiotherapy and occupational therapy), research and patient support programs | **Population served** | — In 2016-17, the hospital provided care for over 400,000 outpatient visits and 31,424 surgeries[(a)]<br>— In the year 2017-18, the rheumatology division received 36,027 adult and 2,969 pediatric visits[(b)]<br>— The patient base contains 4,600 patients with rheumatoid arthritis |
| **Size** | — HSS has over 244 advanced practice providers, 4,175 FTE employees, 36 operating rooms and 215 licensed beds[(a)] | **Demographics** | — Wide range of patients from pediatric to adults. Also treats professional athletes and sportspersons |

### The Rheumatology division

| | | | |
|---|---|---|---|
| **Services** | — Outpatient and ambulatory care, infusion therapy unit, physiotherapy and occupational therapy services, orthopedic surgery | **Collaborations** | — The rheumatology division is comprised of faculty members who have links with Weill Cornell Center and New York Presbyterian Hospital |
| **Funding and Resources** | — $38m funding from National Institutes of Health (NIH) for research studies[(a)]<br>— $174m HSS endowment[(a)]<br>— The hospital also receives federal funding | **Teaching/ research scope** | — HSS Education Institute provides education and training to healthcare professionals, and conducts research into the underlying mechanisms behind rheumatic conditions and musculoskeletal care<br>— The rheumatology division brings together HSS faculty and staff members with an interest in a particular disease area to develop projects and new research initiatives. They include physicians and healthcare professionals from other departments, such as orthopedics, social work, nursing and research |

**References**: (a) About HSS. Hospital for Special Surgery [online] https://www.hss.edu/about.asp Accessed 17 September 2019; (b) Hospital for Special Surgery. Advancing Rheumatology, Division of Rheumatology Annual Report 2017-2018 [online] https://www.hss.edu/rheumatology-annual-report.asp Accessed 17 September 2019

## Overview of Services

| Service Division | Inflammatory Arthritis Center | Infusion Therapy Unit |
|---|---|---|
| Duration of stay | Initial consultation: 40–60 minutes<br>Follow up consultation: 15–30 minutes<br>(duration is dependent on complexity and disease progression) | Dependent on therapy being given (i.e. some medications can take a number of hours; however, other treatments require a shorter time for administration) |
| Hours of availability | Mon-Fri (08:30-17:00) | Mon-Fri (08:00-20:00) |
| Capacity (no. of beds/rooms) | N/A | 8 chairs |
| No. of patients seen | 13,727 | 4,600 infusions annually |
| Patient type catered to | Adult and pediatric patients with RA<br>When patients need to be hospitalized, they are admitted at the New York Presbyterian Hospital and the patient's rheumatologist from HSS attends to them there | Patients with moderate to severe RA |
| Services offered | — Orthopedic, rheumatology and specialty care<br>— Free support and education programs such as the Early Arthritis Initiative<br>— Living with RA: Lecture, Lunch and Conversation event, a monthly meeting for patients, family and friends | — Intravenous administration of medication including biologics |

# The team

## Core team profiles

- 37 rheumatologists
- 5 pediatric rheumatologists
- 9 scientists
- 30 pharmacists
- 17 perioperative medicine physicians
- >200 therapists including:
  - majority being physiotherapists
  - 20 occupational therapists
  - 2 speech and language therapists
  - 8 certified hand therapists
- dieticians
- internal medicine specialist

## Key features of the care delivery team

### Personalized care

- Personal RA care teams involve multiple specialists to help the patient manage different symptoms of the disease
- Specialists include rheumatologists, physiotherapists, occupational therapists, dieticians, mental health professionals, orthopedic surgeons, etc.

### Multidisciplinary network

- Rheumatologists at HSS have relationships with physicians in other specialties and leverage these relationships to manage RA comorbidities

### Rapid response

- A multidisciplinary rapid response team is in place to help patients within the hospital with severe RA before their health status becomes a medical emergency

## Affiliate team profiles

(The affiliate team members consists of members from the Weill Cornell Medical School and other private practices)

- Cardiologists
- Endocrinologists
- Pulmonologists
- Psychologists

## Governance and processes

### Team meetings:

- Weekly grand rounds and journal club meetings to share updates about developments in RA treatment

### Guidelines followed:

- 2019 American College of Rheumatology (ACR) Guidelines for the Treatment of RA
- 2016 Update of European League Against Rheumatism (EULAR) Recommendations for the management of RA with synthetic and biological disease modifying anti-rheumatic drugs

### Patient records:

- EPIC integrated electronic medical records are used and allow physicians to look at patient data over time

### Pharmacy:

- The hospital has a pharmacy for patients. There is a two-step verification process for infusions and high risk medications to ensure that patients receive the correct medication and dosage. Two pharmacists check and confirm the medication regime

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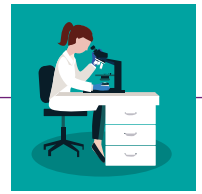
Appendix - Center Reports

# Overview of interventions in place for RA

Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis & Treatment initiation
In secondary care



## Treatment and Management
Medical management

**Interventions**

### Early Arthritis initiative (see case study page 198)
— The Early Arthritis Initiative, a division of the Inflammatory Arthritis Center at HSS, aims to facilitate quick access to assessment of rheumatology conditions and associated treatment through outreach and community education

### Collaboration with PAGs (see case study page 208)
— HSS aims to collaborate with Patient Advocacy Groups (PAGs) to provide patient education and increase awareness of RA

### Pre-referral tests by Primary Care Physicians (PCP)
— PCPs first orders blood tests and x-rays to when there is a suspicion of RA. This occurs prior to referring the patient to a specialist at HSS

### Patient records from other rheumatologists
— Patients may attend HSS after being looked after by non-HSS rheumatologists. As a result, patients will attend with their old patient records, lab results and consultation notes, which the HSS rheumatologist will review as part of the initial consultation

### Public and patient education
— The Public and Patient Education Department (PPED) at HSS offers a panel of practical information on musculoskeletal conditions and other health-related topics of interest to patients and the public

### HSSConnect physician referral service
— HSS operates a physician referral service to assist patients in selecting physicians who are active members of the hospital's medical staff

— The referral service determines the physician based on the physician's specialty, the patient's need, the patient's insurance, and physician capacity/schedule

### Primary Care Physician (PCP) direct referrals
— PCPs who have access to the electronic health management system (generally affiliated with HSS) make referrals directly to HSS. Other PCPs email or call the rheumatology division/specialist directly

— Patients expect to see a rheumatologist within 1-2 weeks after referral

### Pre-consultation patient screening
— Prior to the initial consultation with the rheumatologist, a nurse performs an initial check of the patients including measuring vital signs, medical reconciliation, recording height and weight

— The records are uploaded onto the electronic health management system so that the rheumatologists are able to review the results before they perform the consultation

### RA care team (see case study page 200)
— A personal RA care team helps patients manage different symptoms of the disease

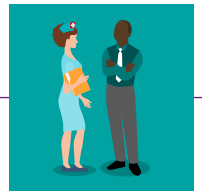
— The care team is headed by the rheumatologist and may include other healthcare professionals such as a physiotherapist, an occupational therapist, a dietician, a mental health professional and/or an orthopedic surgeon

### Emphasis on patient self-management
— Self-management techniques, such as mindful breathing and meditation, help patients to cope with chronic stress and pain, and reduce medication use

### Two-step medication verification for infusions
— A day before a patient is scheduled for infusion therapy, a pharmacist ensures the medication dosage is correct. As a second step, a different pharmacist verifies that infusion medication has been entered correctly into the system

— In case of a wrong drug, the EPIC integrated electronic health system notifies the IV pharmacist and maintains a record of the incident

## Treatment and Management
Non-medical management



### RA support and education programs (see case study page 206)

— These programs are designed to address the specific needs of patients with RA at different phases of their RA journey. The programs aim to provide essential information to patients about RA and its comorbidities

— The programs consist of two parts: specialist lectures which present essential information about RA and support group discussions with other patients

### Rehabilitation unit with physical therapy (PT) and occupational therapy (OT) (see case study page 203)

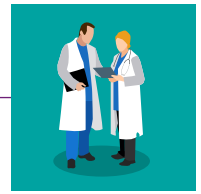
— HSS has a rehabilitation center which provides a wide range of physical and occupational therapy services for patients with RA

— Patients are often shared between OT and PT and are seen in the same gym space. The therapists also share office space which facilitates collaboration

### Counseling

— HSS can provide one-on-one, short-term supportive counseling with licensed clinical social workers who are familiar with the particular difficulties involved in living with RA

## Medical care & Follow-up
Monitoring of chronic disease/flare up



### Rapid response team (see case study page 199)

— The rapid response team is a multidisciplinary (MDT) team which consists of critical care nurses from the Post Anesthesia Care Unit and physician assistants

— For chronic RA cases, the rapid response team treats patients with RA before their health status becomes a medical emergency

### Regular follow ups

— Follow ups for patients with low disease activity generally take place every 3 months. Others with higher disease activity will be seen more frequently

— If needed and if insurance allows, patients can be seen up to 25 times a year for physiotherapy (i.e. every two weeks)

— The therapists may support patient insurance claims and call the insurers to seek for approval for extra sessions and explain the patient's care plan

### Post-discharge calls

— For patients who have been hospitalized, HSS will make a few days after discharge (from HSS)

— If a patient had a complex recovery period, the calls are made by the physician assistants or senior nurses

### Patient educational materials

— The HSS website has articles and other educational materials on RA available for patients

— Topics include 'RA Overview', 'RA Treatment', 'RA Surgery' and 'RA Wellness'

### Pharmacist-led education

— Patient education for inpatients is performed by the clinical pharmacists. The pharmacists visit each patient and educate them about their treatment

### Nurse-led education

— Nurses speak to the all outpatients regarding their treatment and procedures. This helps in improving treatment adherence

### Soleforce

— Soleforce is a patented device that enhances the patient's post-operative healing by tracking the amount of pressure they apply to their lower limbs

— The collected data can then be shared with physicians to inform care plans

### Patient access via direct scheduling

— Rheumatologists in the practice now offer direct patient scheduling in order to facilitate better patient access

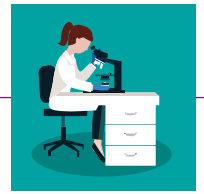
— The center is continuing to increase the number of physicians who can provide patients with this opportunity, (including potential new patients)

# Overview of interventions in place for RA comorbidities

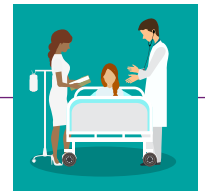
Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis
In secondary care



## Treatment and Management
Medical management



**Interventions**

### RA support and education programs (see case study page 206)

- The patient support group and education programs provide information to patients about RA and its comorbidities
- Specialist lectures cover topics related to RA comorbidities with the objective of preventing the latter if possible
- Support group discussions provide patients an opportunity to learn comorbidities from long-standing members, who share their personal journeys and strategies for coping with RA and these comorbidities

### Other RA related programs

- Numerous support programs are available for patients to learn more about RA and cope with its symptoms and comorbidities. Some of the available programs include:
  - Rheumatoid Arthritis: Myths and Realities
  - Eating Right with Arthritis: Arthritis Nutrition FAQs
  - Acupuncture: Can It Help My Rheumatoid Arthritis?
  - Learning to Manage Your Stress with Rheumatoid Arthritis

### Established relationship with RA comorbidity specialists (see case study page 200)

- HSS embraces a philosophy of integrative care as a leader in the research and treatment of rheumatic diseases. On a daily basis, HSS rheumatologists interact closely with many other essential healthcare professionals necessary to improve patient care and manage comorbidities
- Some of the specialists and their roles include:
  - **Endocrinologist:** Assesses risk of diabetes in patients with RA and manages diabetic treatment
  - **Pulmonologist:** Performs baseline lung function test and x-rays to check for lung fibrosis and abnormalities that can occur in RA
  - **Psychologist:** Performs a basic evaluation of a patient's mental state and helps patients cope with the stress of treating RA
  - **Cardiologist:** Manages heart-related comorbidities for patients with RA who have any vascular anomalies or abnormal electrocardiogram (ECG) results

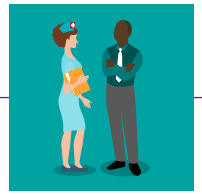
### RA care team (see case study page 200)

- The personal RA care team includes multiple comorbidity specialists to help patients manage different symptoms of the disease

### Perioperative management (see case study page 202)

- Prior to surgery, patients are screened for comorbidities and medical conditions that require optimization
- Patients are required to complete an intake form before their consultation with the surgeon
- The electronic health system flags all checks required for each patient prior to surgery
- A team of specialists such as cardiologists collaborates with the surgeon to manage the comorbidity so an optimal outcome post-surgery can be achieved

## Treatment and Management
Non-medical management



### Weight management clinic (see case study page 204)

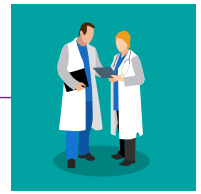
— A weight management clinic caters to patients with RA and helps them make lifestyle and diet changes to manage their weight. It also helps orthopedics patients with weight loss before surgery

— Weight loss improves joint pain,[a] and potentially decreases the use of RA-related medication[b]. It also reduces the risk of developing other diseases such as cardiovascular disease[a]

### Collaboration with PAGs (see case study page 208)

— HSS supports and collaborates with RA PAGs such as the Arthritis Foundation. The foundation helps patients manage the non-medical aspects of their disease and related comorbidities

## Follow-up
Monitoring of chronic disease/flare up



### Rapid response team (see case study page 199)

— The multidisciplinary (MDT) rapid response team attends to patients in cases where urgent care is required for RA comorbidities

— The team provides immediate assessment to prevent an escalation of a patient's condition into a medical crisis

### Post-discharge calls

— The center makes post discharge calls to patients (from HSS). All patients are called by the floor manager in the days after the discharge from hospital

— If a patient had a complex recovery period, then the calls are made by the physician assistants or senior nurses

### Patient educational materials

— Educational materials on RA and its comorbidities are available on the HSS website. Some examples of the topics covered include:

- Heart Health and Chronic Inflammatory Disorders
- Rheumatoid Arthritis and Eye Concerns
- Mind-Body Practices for Enhanced Well-Being When Living with Rheumatoid Arthritis

### Pharmacist-led education

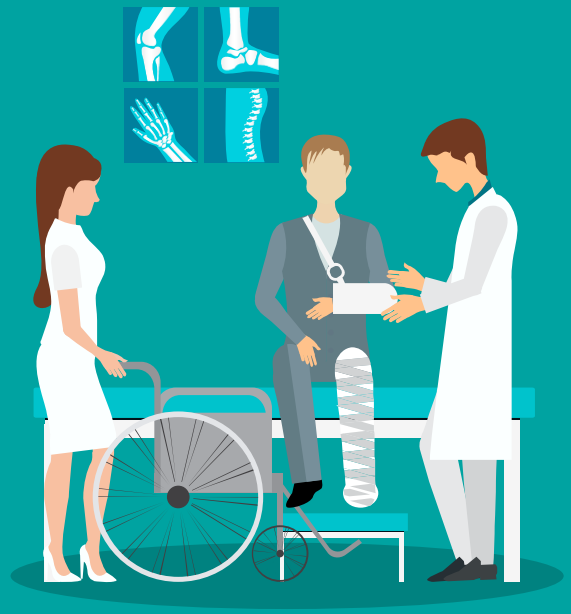
— Clinical pharmacists spend time educating inpatients about managing comorbidities and adherence practices

### Nurse-led education

— Nurses educate outpatients on how to manage RA comorbidities and provide information on steps which patients need to adhere to

**References**: (a) Kreps DJ, et al. Association of weight loss with improved disease activity in patients with rheumatoid arthritis: A retrospective analysis using electronic medical record data. *Int J Clin Rheumtol.* 2018;13(1): 1–10. doi: 10.4172/1758-4272.1000154; (b) Sparks JA, et al. Impact of Bariatric Surgery on Patients With Rheumatoid Arthritis. *Arthritis Care Res (Hoboken).* 2015;67(12):1619–1626. doi:10.1002/acr.22629

# These interventions have improved outcomes



> The rheumatology practice is filled with people who are interested in solving problems
>
> – Rheumatologist

KPMG

## How do you quantify the benefits in RA?

### Objective measures (KPIs):

— **Disease Activity Score 28 (DAS28):** used to measure patient outcomes in RA by examining 28 joints for disease activity

### PROs:

— **Physical Global Assessment (PGA):** patient's self-assessment of overall RA disease activity on a scale 1-10, where 10 represents maximum activity

### Center routinely measures comorbidity outcomes by:

— Monitoring of patient outcomes related to comorbidities pre-surgery and post-surgery *(see case study 'Perioperative Management' on page 202)*

— Any adverse outcomes are discussed by a Multispecialty Peer Review Committee to determine if there were potential opportunities for process improvement

### Research PROs

— Rheumatoid Arthritis Flare Questionnaire (RA-FQ)[a]

— The National Institutes of Health-funded PRO Measurement Information System (PROMIS)[b]

## How have these interventions improved patient outcomes?

### RA

— Improvement in patient reported outcomes, measured using Physical Global Assessment (PGA) and Disease-activity Score 28 (DAS 28)

### Comorbidities

— Close monitoring and comprehensive management of comorbidities through different activities such as perioperative management and weight management clinic

— Re-admissions after discharge are rare (HSS is targeting a zero percent readmission rate)

— HSS has one of the lowest rates of surgical site infection in New York (0.1% as compared to the state average of 1.2%)[c]

**References**: (a) Bykerk V, et al. AB1304 The Rheumatoid Arthritis flare questionnaire (RA-FQ) is an easy to administer patient-reported outcome measure that tracks well with the Clinical Disease Activity Index (CDAI) over time in patients with Early Rheumatoid Arthritis (ERA) in 2 different health settings. *Annals of the Rheumatic Diseases* 2019;78:2114-2115; (b) Bykerk VP. Patient-Reported Outcomes Measurement Information System Versus Legacy Instruments: Are They Ready for Prime Time? *Rheum Dis Clin North Am*. 2019;45(2):211-229. doi: 10.1016/j.rdc.2019.01.006; (c) Hospital for Special Surgery: specialists in mobility. Horizon 2009 Annual Report. Spring 2010 [pdf] https://www.hss.edu/files/spring-2010-horizon.pdf Accessed 16 September 2019

# How can care be improved?

## What is next for the center?

### Overview: Post discharge Video Conference (VC) calls

**Why?**

— To ensure that re-admissions after discharge (from HSS) are rare and to achieve the target of a zero percent re-admission rate

**How?**

— The center currently has post discharge calls to patients. All patients are called by the floor manager in the days after the discharge from hospital. If a patient's recovery is somewhat difficult, then a physician assistant or a senior nurse will call the patient

— HSS is evaluating the possibility of setting up telemedicine consultations in New York, New Jersey and Connecticut and is planning to make the existing post discharge calls a VC. This will enable more frequent check-ins with patients. Following a trial with post discharge patients, HSS could potentially provide VC calls for all types of patients

### Overview: New intake questionnaire form for patients with RA

**Why?**

— A self-assessment form can help the rheumatologist assess a patient's condition, identify comorbidities and check for any red flags before their first consultation

— However for patients with RA who are not considered for surgery, HSS does not use such forms

**How?**

— HSS is planning to start using a patient self-assessment intake form (similar to the one developed for pre-operative patients) for all patients including those with RA.

— The form will include a questionnaire that patients with RA will be asked to fill in once

— HSS is also considering using a questionnaire which will be required to be regularly filled by patients

### Overview: Building a dedicated field in perioperative management

**Why?**

— To manage comorbidities before a surgery and to maximize the chances of a successful surgery

— To reduce the number of re-admissions after discharge and achieve the target of a zero percent readmission rate

**How?**

— HSS currently has a few interventions in place to manage pre-operation comorbidities and is planning to build a dedicated field in perioperative management

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# How can care be improved? (cont.)

## What advice would you give less specialized centers?

### Overview of advice: Encourage all staff to remain up-to-date with RA treatment

**Why?**

— RA management is evolving, with a number of new treatments available. All team members should remain aware and up-to-date, to ensure patients receive the best possible care where possible

**How?**

— Provide staff with opportunities to learn about new treatments through weekly grand rounds, journal clubs and other educational meetings

### Overview of advice: Establish a multi-disciplinary team

**Why?**

— A multi-disciplinary team can support the holistic care of patients with RA

**How?**

— Identify key team members interested in the management of RA (e.g., registered nurse, pharmacist, etc.) and ensure all of them are working towards a common goal

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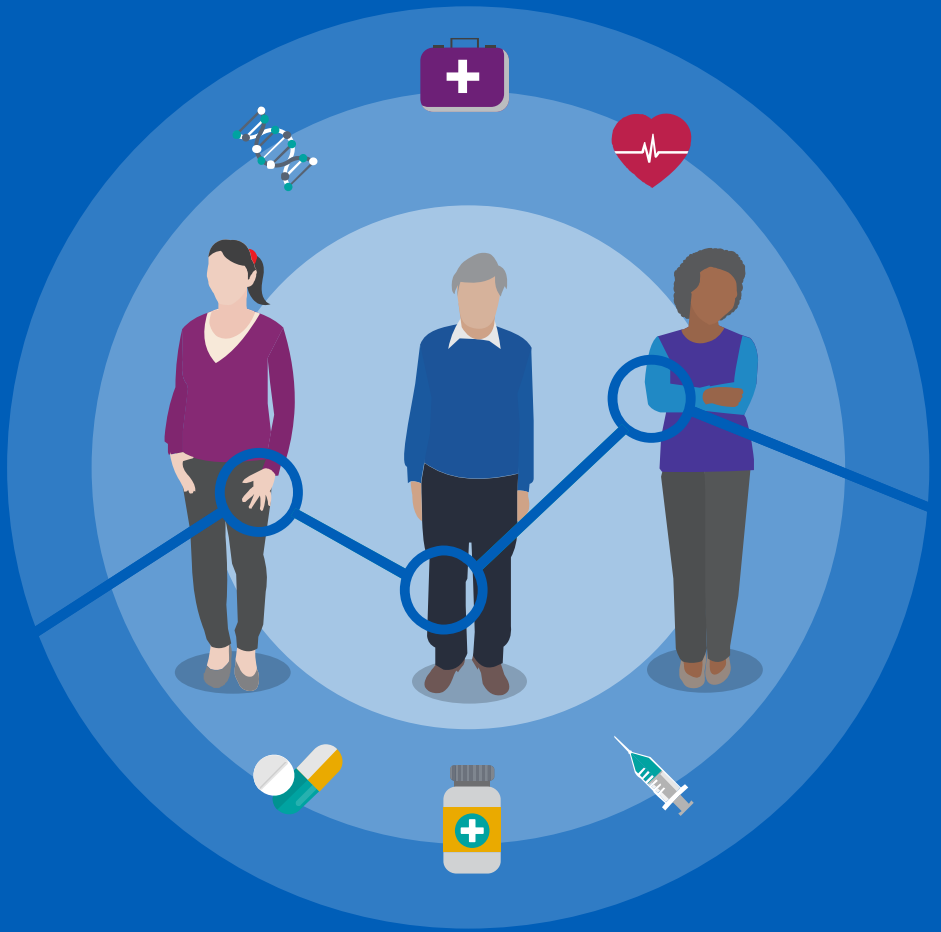

# Case studies


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Appendix - Center Reports

# Care team

## Overview

— A personal RA care team involving multiple specialists to help the patient manage different symptoms of the disease

## What is the rationale?

— RA symptoms can change as the disease develops[a]

— Although patients with RA may initially only interact with a primary care physician and a rheumatologist, adding other health professionals to the RA care team can make it easier to manage symptoms and even delay progression of the disease[a]

— It also provides patients with necessary psychosocial support to deal with RA and its treatment

## What are the key features of the intervention?

— A rheumatology nurse acts a coordinator for patients with RA and will liaise with physicians on the care team about patients' management and treatment plan

— The care team consists of physicians from different specialties. The patient will be referred to a physician within the care team when necessary

— Patients can speak directly to the coordinator when they are feeling overwhelmed with their RA symptoms

— Depending on the patient's symptoms, the coordinator can utilize an established order set to provide advice or refer to a physician within the team

## Who is involved in the team?

— **Rheumatologist:** Leads the care team and assesses the patient's symptoms, makes RA treatment recommendations, and refers the patient to other healthcare professionals

— **Physical and occupational therapists:** Provides advice and exercises to educate patients on how to stay active and function efficiently at work and at home

— **Dietitian:** Provides advice on avoiding potential food that may trigger inflammation and develops a weight-loss program for patients (if necessary)

— **Mental health professional:** A trained psychologist or psychiatrist provides patients with RA with emotional support and guidance

— **Podiatrist:** Patients with RA affecting the joints in the feet or ankles and may require a podiatrist's review. The podiatrist may recommend orthotic inserts in shoes or splints to ease symptoms or relieve pain

— **Orthopedic surgeon:** Supports the management of patients with severe joint damage. The surgeon may recommend a surgical solution, such as joint replacement or removal of the joint lining, to restore lost function or improve range of motion

— **Perioperative Medicine Division:** Manage and collaborate with surgeons on behalf of patients who are expected to undergo surgery, and provide a structured risk assessment, medication optimization and management for patients undergoing surgery

The patient's primary care physician (PCP) may also be involved in the care team and work alongside the rheumatologist. The patient's primary care physician, may also support patient referral to other specialists, monitor aspects of the patient's health and coordinate care

**References**: (a) How to Build Your Rheumatoid Arthritis Care Team. Everyday Health. 2014 [online] https://www.hss.edu/newsroom_build-rheumatoid-arthritis-care-team.asp Accessed 16 September 2019

# Early Arthritis Initiative

## Overview

— The Early Arthritis Initiative, a division of the Inflammatory Arthritis Center at HSS, aims to facilitate quick access to assessment of rheumatology conditions and associated treatment through outreach and community education

## What is the rationale?

— Early diagnosis and treatment of RA can have a significant clinical and functional benefit for patients[a]

## What are the key features of the intervention?

— The Early Arthritis Initiative (EAI) was established through a collaboration between the HSS Rheumatology, Social Work and Nursing departments

— The EAI team consists of a member from each department and a general manager. All team members have experience in the diagnosis and treatment of RA[b][c]

— The main objectives of EAI are to:

- Promote early diagnosis and treatment of RA
- Support research and prevention strategies for RA
- Provide support and education for newly diagnosed patients with RA[b]

— The team aims to work with the public, local physicians and individual patients to achieve EAI's objectives

## What are the activities undertaken?

— EAI has been involved with organizing public service announcements to encourage patients to undertake a phone screening to determine if an RA assessment is required

— It was initiated ~18 years ago, with the purpose to develop educational programs for PCPs in order to promote early referral of patients with early RA. Due to the limited adoption of the on-site PCP sessions, the program evolved into a patient-focused education. The Early RA Support and Education Program is an example of an EAI established initiative that focuses on supporting patients with RA – *see case study RA support and education programs*

— A considerable amount of RA research has also been undertaken as part of EAI, for example, looking into how early arthritis can develop into more severe diseases and if this can be predicted. This has led to close collaboration between the center's rheumatologists and scientists/pathologists working together to better understand disease pathogenesis

## What are the outcomes so far?

— Based on an internal questionnaire, 90% of patients reported that they were able to make informed decisions about their RA after attending the group sessions[d]

— EAI is currently working with the National Arthritis Foundation to evaluate the impact of public service announcements in patient initiated requests for RA screenings

**References**: (a) Emery P. Evidence supporting the benefit of early intervention in rheumatoid arthritis. *J Rheum Supp.* 2002;66;3-8 (b) Inflammatory Arthritis Center. Hospital for Special Surgery [online] https://www.hss.edu/inflammatory-arthritis-center.asp. Accessed October 10, 2019 (c) Early Arthritis Initiative of the Inflammatory Arthritis Centre. Hospital for Special Surgery [online] https://www.hss.edu/early-arthritis-initiative-inflammatory-arthritis-center.asp. Accessed October 10, 2019 (d) Rheumatoid arthritis support, education program has strong positive impact. Science Daily [online] https://www.sciencedaily.com/releases/2014/11/141119112553.htm. Accessed October 10, 2019

# Rapid response team

## Overview

— A dedicated multidisciplinary team to address needs of patients with RA in crisis

## What is the rationale?

— Inflammation is a major factor driving the progression of structural damage in RA. It is critical to achieve rapid suppression of inflammation to maximize disease control[(a)]

— The purpose of the rapid response team is to help before a patient's health status becomes a medical emergency[(b)]

## What are the key features of the intervention?

— The Department of Nursing was instrumental in the development and implementation of a Rapid Response Team

— Piloted in January 2009 on the inpatient units, the Rapid Response Team is now a valuable resource in the hospital's outpatient clinics too[(c)]

— The Rapid response team is a multidisciplinary (MDT) team which consists of critical care nurses from the Post Anesthesia Care Unit and physician assistants

— Each department is assigned its own nursing team, which includes registered nurses, patient care associates, and registrars. This enables patients to interact with the same staff members during their hospitalization, fostering continuity of care and greater patient comfort

## What are the activities undertaken?

— The Rapid Response Team can be called by a healthcare professional, a patient, or a family member whenever there is a concern that a patient might be in distress

— The team provides immediate assessment and intervenes accordingly to prevent an escalation of a patient's condition into a medical crisis

— The co-director of the care team ensures that everyone is visible across the organization if a patient calls

— Order sets ensure that the nurses and doctors know the next steps

## What are the outcomes so far?

— Faster access for HCPs, patients and patients' families to gain rapid evaluation of a potential significant acute clinical problems

— Improved patient outcomes and experience of care

**References**: (a) Emery P, et al. Clinical identification and treatment of a rapidly progressing disease state in patients with rheumatoid arthritis. *Rheumatology* 2008;47(4):392–398. doi: 10.1093/rheumatology/kem257; (b) Hospital for Special Surgery. Patient Safety [pdf] https://www.hss.edu/files/patient-safety-guide.pdf Accessed 16 September 2019; (c) Hospital for Special Surgery: Specialists in Mobility. Horizon 2009 Annual Report. Spring 2010 [pdf] https://www.hss.edu/files/spring-2010-horizon.pdf Accessed 16 September 2019

# Established relationships with RA comorbidity specialists

## Overview

— The rheumatologists at HSS have access to a network of specialists to support holistic care of patients with RA and their comorbidities

## What is the rationale?

— Patients with RA are at an increased risk of developing comorbidities[a] such as osteoporosis, depression and cardiovascular diseases. These comorbidities can often be under-recognized[b]

— Failure to appropriately diagnose and treat comorbidities can negatively impact a patient's quality of life[c]

— A specialist network within HSS enables rheumatologists to collaborate physicians in other specialties and work within a multidisciplinary team to provide holistic care to patients with RA[d]

## What are the key features of the intervention?

— Rheumatologists have relationships with physicians in other specialties and leverage these relationships to manage RA comorbidities. These include:

- **Endocrinologist:** Checks for diabetes in patients with RA and manages diabetic treatment
- **Pulmonologist:** Performs baseline lung function test and x-rays to check for lung fibrosis and abnormalities that can occur in RA
- **Psychologist:** Performs a basic evaluation of a patient's mental state and helps patients cope with the stress of treating RA

## What are the key features of the intervention? (cont.)

- **Cardiologist:** Manages heart-related comorbidities for patients with RA who have any vascular anomalies or abnormal electrocardiogram (ECG) results

— The rheumatologist is the core physician responsible for the patient's RA treatment and utilizes the specialist network as required

— Referrals can be made between specialists via the electronic health system. They can also be made either via email or a phone call

— The rheumatologist's secretary may also make appointments for the patients directly with other specialty administration

## What are the outcomes so far?

— Working with RA comorbidity specialists can improve identification of comorbidities

- For instance, working closely with a pulmonologist has enabled early identification of respiratory comorbidities. Early identification has enabled patients to avoid initiation of medical treatment and reduced the risk of potential lung injury[e]

— Physicians can communicate with each other to create and maintain a holistic treatment plan for patients

**References**: (a) Dougados M, et al. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). *Ann Rheum Dis.* 2014;73(1):62-8. doi: 10.1136/annrheumdis-2013-204223 (b) Roubille C, et al. Evidence-based Recommendations for the Management of Comorbidities in Rheumatoid Arthritis, Psoriasis, and Psoriatic Arthritis: Expert Opinion of the Canadian Dermatology-Rheumatology Comorbidity Initiative. *J Rheum.* 2015;42(10):1767-1780. Accessed October 10, 2019; (c) Theis K, et al. No One Dies of Old Age Anymore: A Coordinated Approach to Comorbidities and the Rheumatic Diseases. *Arthritis Care & Research.* 2016;69: 1-4. doi:10.1002/acr.23114; (d) MacKay C, et al. An exploration of comprehensive interdisciplinary models for arthritis. *Arthritis Community Research & Evaluation Unit (ACREU)* 2005 P-8; (e) KPMG interviews with Hospital for Special Surgery HCPs

## Benefits

**Benefits to patients:**

- Improves patient outcomes
- Increases patient access to specialists
- Patients are referred to specialists who are located closer to home

**Benefits to HCPs:**

- Specialized management of comorbidities through collaboration of care
- Allows for the rheumatologist to create a multidisciplinary care team to provide holistic care

## Challenges

- If a patient is referred to another specialist through the electronic system, the rheumatologists have low visibility on whether or not an appointment has been made as it does not automatically appear on the system
- Although there is an established relationship between physicians, patients not be able to access the comorbidity specialists due to their insurance coverage

## What else could be done?

- The perioperative assessment of comorbidities for patients undergoing surgery could be replicated and performed for all patients with RA. The comprehensive review would support optimization of the patient's comorbidities and potentially improve future patient outcomes

> It is possible to do referrals in EPIC but sometimes we do not know if they have actioned it, so I like to either email or call the specialist I recommend
>
> - Rheumatologist

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Appendix - Center Reports

# Perioperative management

## Overview

— Perioperative management focuses on optimizing the health of patients who are planning to undergo surgery and providing medical care for those patients following surgery

— At HSS, medical conditions that require optimization are identified prior to surgery by a team of physicians who collaborate with the surgeon to assure an optimal outcome of surgery

> "It is a very robust process. To identify comorbidities pre-operation allows us to get them managed"
>
> - Comorbidity coordinator

## What is the rationale?

— A patient with RA requires routine perioperative management in the setting of elective surgery[(a)]

— Prior to elective surgery, patients with RA must be carefully evaluated for organ involvement that may impact their fitness for surgery including cardiovascular, pulmonary, hepatic, and hematologic[(a)]

— Perioperative management is useful in identifying comorbidities before an operation and in optimizing patients for surgery to ensure best chances of surgery success

## What are the activities undertaken?

— Prior to a patient's surgery, there is a thorough review of the patients medical history and conditions. The patient's health record is reviewed by the electronic health based on an algorithm

— Based on the review, the electronic health system flags all checks required for each patient

— To address any flags raised, patients are required to complete an intake form before their consultation with the surgeon. The intake form includes a question set that assesses the patient's comorbidities. Completion of the intake form enables surgeons to comprehensively review any patient comorbidities

— The comprehensive review highlights any comorbidities the surgeon should closely monitor or aim to optimize prior to surgery

## What are the activities undertaken? (cont.)

— Protocols have also been put in place to achieve an improved BMI prior to surgery, as well as enhance diabetes management

— The surgeon has an option to delay the surgery and refer the patient to comorbidity specialists if required

- For example, one of the questions on the intake form asks about opiate use. If the patient has been on daily opioids for 3 months or longer, then he/she needs to see the chronic pain team before being deemed fit for surgery

— If required, patients may remain in hospital post-surgery. The patients' comorbidities are discussed each morning during the interdisciplinary rounds

— Calls are made by the floor manager to all patients in the days following their discharge from hospital (HSS). If a patient has multiple comorbidities or had a complex recovery period, the call is made by a physician assistant or senior nurse

## What are the outcomes so far?

— Re-admissions after discharge are rare and HSS targets a zero percent readmission rate

**References**: (a) Krause ML, et al. Perioperative management of the patient with rheumatoid arthritis. *World J Orthop*. 2014;5(3):283–291. doi: 10.5312/wjo.v5.i3.283; (b) Hospital for Special Surgery: specialists in mobility. Horizon 2009 Annual Report. Spring 2010 [pdf] https://www.hss.edu/files/spring-2010-horizon.pdf Accessed 16 September 2019

# Rehabilitation unit with OT and PT

## Overview

— HSS has a rehabilitation unit which provides a wide range of physical and occupational therapy services for patients with RA

> I feel that being able to keep someone's independence is the best thing we can do as a physiotherapist
>
> - Physiotherapist

## What is the rationale?

— RA is a chronic and painful clinical condition which can lead to progressive joint damage, disability, deterioration in quality of life, and shortened life expectancy[a]

— Physiotherapy and rehabilitation interventions significantly augment medical therapy by improving the management of RA and reducing handicaps in daily living for patients with RA[a]

## What are the key features of the intervention?

— The rehabilitation unit is consists of physical therapists (PT), occupational therapists (OT) and speech and language therapists (SLT)

— Patients with RA are referred to the rehabilitation unit by rheumatologists for advice and guidance on how to stay active and function efficiently at work and at home

— Generally, patients with RA will see a PT and/or OT. Patients can either be referred to the therapy unit or to a specific therapist (depending on the patient's preference)

— Patients can either be referred to the therapy unit (in which case the next available therapist will see them) or to a specific therapist based on the rheumatologist's choice

— For severe RA cases, patients can be seen ~25 times a year (every two weeks), depending on the patient's insurance coverage

— An initial consultation with a PT/OT is around 1 hour. Follow up consultations are generally 30 mins

## What are the activities undertaken? (cont.)

— A PT/OT will perform an initial assessment and determine what type of exercises will support patients with everyday tasks

— **Physical therapy**
PTs typically performs stretches, uses heat and ice therapy and makes patients perform exercises. Exercises include cycling, elliptical and NuStep

— **Occupational therapy**
OTs typically teach patients adaptive strategies (i.e. different ways of completing an activity), joint protection and methods of energy conservation

— After the appointment, patients are asked to perform some exercises in the gym area. 4-5 technicians circulate across the gym to help patients with their exercises

— For each appointment, the PT/OT sets homework for the patients which they are expected to do for 10-15 minutes a day

## What are the outcomes so far?

— Potential improvements in the patient abilities to perform daily living activities

## Challenges

— Providing affordable care is a challenge as some therapies might not be covered by a patient's insurance plan

— Compliance levels for 'homework' (i.e. patient exercises) can be low

**References**: (a) Kavuncu V, et al. Physiotherapy in Rheumatoid Arthritis. *MedGenMed.* 2004;6(2):3

# Weight management clinic

## Overview

— A weigh management clinic which caters to patients with rheumatic diseases include RA

— The clinic has recently been established and helps patients make lifestyle and diet changes to manage their weight

## What is the rationale?

— Obesity is significantly associated with RA[a]

— RA medication such as corticosteroids (prednisone) have weight-related side effects[b]

— Patients with RA require a holistic approach to weight management by physicians and the acknowledgement of the significant psychosocial impact of a dual diagnosis of RA and being overweight or obese[c]

— Weight management in RA is an emerging subspecialty, with active studies in place[d]

## What are the key features of the intervention?

### Background

— The weight management clinic was initially established for orthopedic patients requiring pre-operative interventions (e.g., patients with osteoarthritis undergoing joint replacement who had high surgical risk due to their weight)

— The clinic was expanded to include other patients including those with RA and pre-surgery orthopedics to help them with weight loss, especially before surgery

| | |
|---|---|
| **Method** | — The foundation of the clinic is to approach weight loss from a comprehensive standpoint and help patients make lifestyle and diet changes to manage their weight |
| **Patient type catered to** | — Patients with RA and pre-surgery orthopedic patients |

## What are the key features of the intervention? (cont.)

| | |
|---|---|
| **Duration** | — The initial consultation lasts 45 minutes |
| **Steps involved** | — The patient's medical history, weight history, blood work and medication is reviewed<br>— The internal medicine specialist works with a dietician to come up with a weight management plan<br>— Based on the plan, FDA approved pharmacotherapy and/or lifestyle changes may be recommended |
| **Follow-up** | — Follow-up consultation is after a month, depending on where the patients live and if they can come in again |
| **Guidelines** | — The available guidelines on weight loss management are not tailored for patients with RA<br>— US guidelines for the treatment of obesity in the general population are used |
| **Staff members involved** | — Internal medicine specialist<br>— Dietician |

## What are the outcomes so far?

— Patients with RA tend to be more motivated as they are not mandatorily required to participate in weight loss. This has led to better weight loss results in patients with RA

**References**: (a) Dar L, et al. Are obesity and rheumatoid arthritis interrelated? *Int J Clin Pract.* 2018;72(1). doi: 10.1111/ijcp.13045; (b) Prednisone and other corticosteroids. Mayo Clinic [online] https://www.mayoclinic.org/steroids/art-20045692 Accessed 16 September 2019; (c) Colligan G, et al. Recipients' and providers' perspectives of obesity and potential barriers to weight management programmes in patients with Rheumatoid Arthritis (RA): a qualitative study. *BMC Obes.* 2017; 4: 33. doi: 10.1186/s40608-017-0169-x. Accessed 16 September 2019; (d) Kreps DJ, et al. Association of weight loss with improved disease activity in patients with rheumatoid arthritis: A retrospective analysis using electronic medical record data. *Int J Clin Rheumtol.* 2018; 13(1): 1–10. doi: 10.4172/1758-4272.1000154

## Benefits

**For patients:**

— Minimizes the impact of the weight-related side effects of RA medication

— Reduces surgery risk through pre-surgery weight loss

**For clinicians:**

— Helps with treatment and management of RA

## Challenges

— Funding may be a challenge as insurances may not always cover weight-loss treatments for some patients

— Exercise as a weight loss technique can be challenging for some patients who have reduced mobility

— The available guidelines on weight loss management are not specifically tailored to patients with RA

— RA treatment side effects can make it more challenging as some medication cannot be stopped. Patients need to be informed about supporting pharmacotherapies where appropriate

## Challenges (cont.)

— Patients who are referred by the orthopedic surgeon may lack motivation to lose weight

— Marketing and spreading awareness about a new program within the hospital requires effort in terms of educating staff about the clinic itself and its benefits for patients

## What else could be done?

— Tele-medicine could be set up to enable more frequent check-ins with patients. The center is evaluating the possibility of setting up tele-medicine consultations

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> Patients with RA tend to be highly motivated which leads to positive results with weight loss
>
> - Internal medicine specialist

# RA support and education programs

## Overview

— To help patients better understand and cope with a diagnosis of RA, the Inflammatory Arthritis Center and Early Arthritis Initiative at HSS offers two free support and education programs for patients with RA:
  - The Early RA Support and Education Program
  - Living with RA: Lecture, Lunch and Conversation
— The program meetings/workshops generally contain two parts:
  - A lecture on RA by a healthcare professional
  - A support group discussion for patients to share their experiences of coping with RA
— The programs are designed to address the particular needs of patients with RA at different phases of their journey with the illness

## What is the rationale?

— A diagnosis of rheumatoid arthritis can be overwhelming and extremely stressful. In the early stages of RA, persistent pain can impact a patient's ability to work and trigger symptoms of depression[(a)]
— An RA support and education group addresses the unique psycho-educational needs of people with RA[(b)]

## What are the key features of the intervention?

### Overview

— The programs provide essential information to patients with RA from a wide range of healthcare professionals such as physicians, nurses, physical therapists, nutritionists and social workers
— Survey links are sent out to patients to ask about the topics which the patients would like covered during the lectures
— Each program meeting generally follows a two part structure (a lecture and a support group)
— The first half of the meetings features a lecture by a recognized healthcare professional who provides essential information about RA management and treatment
— Following each lecture, the group participates in a support group discussion, facilitated by a clinical social worker and an experienced rheumatology nurse
— The support group is open to everyone and meetings are advertised through social media channels, including Facebook and Instagram

## What are the key features of the intervention? (cont.)

— Pre-assessment and registration are required for attendance of the programs
— The Public and Patient Education Department publicizes the talks and patients are also informed about the support group by their rheumatologists and therapists

### Early RA Support and Education Program

— The program was developed in 2007 to address the unique needs of people recently diagnosed with RA or early inflammatory arthritis (within the past 2 years)
— Participants meet for a free, four-lecture series which presents essential information about RA and its treatment

### Living with RA: Lecture, Lunch and Conversation

— This program was developed in 1999 for people who have been living with RA for many years
— This is a monthly group program which provides education and support for patients with moderate to severe RA and their family members and friends

## What are the activities undertaken?

### Early RA Support and Education Program

— The patient group meets monthly on Mondays from 5:00pm-7:00pm
— Usually 10-15 patients attend each meeting

**References**: (a) Strand V, et al. The impact of rheumatoid arthritis and treatment on patients' lives. *Clin Exp Rheumatol* (2010); 28:S32-s40; *(b)* Batterman A, et al. Measuring the Impact of an Early RA Support and Education Program Using a Program Evaluation with Patient Identified Outcomes. Presented at Exhibit Center, 259-A, Hospital for Special Surgery, New York on November 19, 2014 https://www.hss.edu/newsroom_study-shows-positive-impact-ra-support-education-program.asp Accessed 13 September 2019

## What are the activities undertaken? (cont.)

### Early RA Support and Education Program (cont.)

— Some topics covered in the lectures include:
  - Real world strategies for managing RA: Group members' tips & tools
  - RA and co-occurring conditions
  - Reducing your risk of infections in RA
  - Oral health concerns in people with RA
— Following the lectures, a support-group discussion with other patients also coping with a new RA diagnosis is co-facilitated by a social worker and a rheumatology nurse
— Newly diagnosed members also learn from long-standing members, who share their personal journeys and strategies for coping with RA

### Living with RA: Lecture, Lunch and Conversation

— The group meets on the third Thursday of the month (10 meetings a year) form 12:00 noon-2:00 pm
— Lectures by RA care experts are conducted which cover topics such as:
  - Stress, Anxiety & Fatigue in IA: Mind-Body Strategies That Work
  - Smart Strategies for Weight Loss and Wellness
— The lectures are followed by support-group discussions facilitated by a clinical social worker and rheumatology nurse

## Benefits

— The information provided helps participants to make informed decisions about management and treatment of RA
— Patients develop self-management strategies, including tools to enhance communication and partnering with the healthcare team, coping with flares and medication side effects as well as with the emotional impact of living with a chronic rheumatic disease
— Patients get access to peer support that may be helpful in coping with the impact of the diagnosis and a safe forum to share their own experiences about their daily challenges related to RA

## What are the outcomes so far?

— The RA Support and Education Program has been evaluated using a program evaluation with patient identified outcomes. Overall, the program has shown a positive impact in three key domains:[(a)]
  - Managing RA
  - Connecting with others
— Based on an internal questionnaire, 90% of patients reported that they were able to make informed decisions about their RA after attending the group sessions[(b)]

**References**: (a) Batterman A, et al. Measuring the Impact of an Early RA Support and Education Program Using a Program Evaluation with Patient Identified Outcomes. Presented at Exhibit Center, 259-A, Hospital for Special Surgery, New York on November 19, 2014 https://www.hss.edu/newsroom_study-shows-positive-impact-ra-support-education-program.asp Accessed 13 September 2019; (b) Rheumatoid arthritis support, education program has strong positive impact. Science Daily [online] https://www.sciencedaily.com/releases/2014/11/141119112553.htm. Accessed October 10, 2019





> Topics I have covered [during the expert lecture] included things like: 'Keeping active with RA' and 'Foot care and Foot changes in RA'
>
> - Physiotherapist

# Collaboration with PAGs

## Overview

— HSS aims to collaborate with Patient Advocacy Groups (PAGs) to provide patient education and increase awareness of RA

— HSS has supported several causes of the Arthritis Foundation such as the 'Moving Is The Best Medicine' and the 'Walk To Cure Arthritis' campaigns

## What is the rationale?

— Physicians and hospital staff may have little time to support patients with the non-medical aspects of their disease. PAGs, such as the Arthritis Foundation, therefore, play a key role in supporting patients

— The Arthritis Foundation aims to help arthritis patients overcome everyday challenges by providing information and resources, access to optimal care, advancements in science and community connection[a]

## What are the key features of the intervention?

— HSS supports and collaborates with PAGs to help increase patient education and awareness of RA. Previous examples of collaborations are:

- Supporting the Arthritis Foundation (AF) and Ad Council's campaign, "Moving is the Best Medicine," to raise awareness of arthritis, increase public health education and support breakthrough research[b]
- Collaborating with the Stavros Niarchos Foundation (SNF) to provide support to the New York Chapter of the Arthritis Foundation for a program to enable Greek physicians to take part in arthritis research at HSS[c]
- Supporting the 2019 Walk to Cure Arthritis, the Arthritis Foundation's signature event to spread awareness and raise funds for arthritis research

## What are the activities undertaken?

— The collaboration is achieved through a longstanding close relationship between HSS physicians and various PAGs. A notable example of this is the association between HSS and the Arthritis Foundation, on whose Board of Governors typically contains several physicians from HSS

To support PAGs, HSS undertakes the following activities:

### Raising awareness

— Complementing the Arthritis Foundation's extensive educational outreach, HSS offers patient education with classes for early stage and postoperative care[b]

— A broad spectrum of community-based programs focused on prevention are offered through the Education Division at HSS. Comprehensive online resources are also available on the HSS website[b]

— The materials are accessible by PAG members and the general public. HSS also supports awareness through distribution of AF materials

### Patient support

— HSS invites members of the Arthritis Foundation to attend its RA support groups. This enables the Arthritis Foundation to supplement their understanding of the types of challenges patients with RA commonly face

**References**: (a) Mission & Vision. Arthritis Foundation [online] https://www.arthritis.org/about-us/mission-vision.php Accessed 26 September 2019 (b) Hospital for Special Surgery Supports Arthritis Foundation Focus on Raising National Awareness of Osteoarthritis [online] https://www.hss.edu/newsroom_hss-arthritis-foundation-osteoarthritis.asp Accessed 26 September 2019; (c) Arthritis Foundation Holds Commitment to a Cure Event.[online] https://www.snf.org/en/newsroom/news/2019/09/arthritis-foundation-holds-commitment-to-a-cure-event/ Accessed 26 September 2019

KPMG

# Santa Fe Rheumatology

**Santa Fe, New Mexico, United States of America**

Visit conducted on 12 December 2019

**kpmg.com/uk**

# Summary

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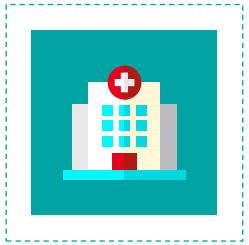


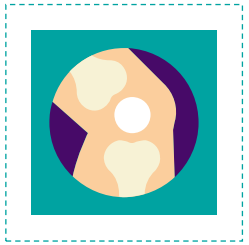
## Context

### Santa Fe Rheumatology center

- Santa Fe Rheumatology is a dedicated private center for rheumatology patients with a focus on research
- The single rheumatologist, office-based practice serves a population of ~2 million in New Mexico, the majority of which are in the northern half of the state
- All rheumatic patients suffering from diseases such as rheumatoid arthritis (RA), ankylosing spondylitis (AS), psoriatic arthritis (PsA), gout and osteoarthritis can access a range of treatment options and are able to receive long term care at the center

### Focus on research

- The center participates in several clinical trials that are both industry and investigator led. There are currently nine active clinical trials in RA, PsA, AS, axial spondyloarthritis (AxSpA) and gout
- The rheumatologist is also collaborating with the University of Texas (Austin) by supporting patient referrals to the university's wellness trial



## Key strengths in the delivery of RA care

### Collaboration with other specialists and healthcare professionals

- The center works closely with specialists and healthcare professionals from other hospitals/practices to treat and manage RA comorbidities (e.g., throat pain, interstitial lung disease [ILD], depression)
- Patients are also referred to physiotherapists and occupational therapists regularly to help them improve self-management of rheumatic conditions
- The collaboration allows patients to experience a smooth referral between different physicians and receive comprehensive RA care

### Population management

- The center participated in the Rheumatoid Arthritis Practice Performance (RAPP) project
- RAPP was a US-wide collaboration initiative run by ~94 rheumatologists that was aimed at improving overall population management and enhancing patient outcomes

### Patient wellness

- The rheumatologist has a high focus on patient mind and body wellness, and conducts events to raise awareness about the importance of overall wellbeing with long term treatments

## Key challenges faced in delivery of RA care

### Coordinating with external specialists

- Managing an efficient referral approach with specialists outside the center can be time-consuming, as it requires maintaining good relationships with multiple RA comorbidity specialists through regular communication
- Waiting time after referrals can also vary considerably for different specialists. This can lead to a delay in treatment

### Sharing patient records

- Working with primary care providers (PCPs) and other specialists outside the center requires patient records to be shared at each step
- Any delay in sharing this information can lead to an interruption in the patient's treatment

# RA in the US: Healthcare system overview

## RA challenges in the US healthcare system:

- It is estimated that there will be a significant shortage of rheumatologists in the US by 2030. In 2015, the demand exceeded the supply of clinical providers by 700 (12.9%). This imbalance is expected to grow to a deficit of 4,133 providers (102%) by 2030[(a)]
- On an average, the lag time between a patient first experiencing symptoms and being referred to a rheumatologist is over 5 months in the US[(b)]
- Measurement of quality has been noted by the American College of Rheumatology to be essential to the care of patients with rheumatic disease. The abundance of quality measures can cause measurement fatigue and a discrepancy between consistency of measures routinely used in clinics[(c)]

## US healthcare system overview:

### Publically funded healthcare:

- Government spending on healthcare accounted for 81.8% of total health spending in 2016. The main channels of public spending are Medicare[1], Affordable Care Act (ACA)[2] subsidies and Medicaid[3][(d)]
- Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older. Medicaid is a health coverage program for Americans with low income and resources. The Affordable Care Act (ACA), is a US law aimed at increasing access to affordable health insurance for Americans
- According to the Centers for Medicare & Medicaid Services (CMS), Medicare spending is likely to grow at an average rate of 7.4% during 2017-27, while spending on Medicaid and private prepaid plans will average 5.5% and 4.8%respectively[(d)]
- The ACA expanded Medicaid to make policies affordable, by extending the fund to subsidies nearly all low-income individuals with incomes at or below 138% of the poverty level[(d)]

### Privately funded healthcare

- Approximately 69.3% of Americans aged under 65 had private health cover in 2017[(d)]
- Those without employer policies buy their own insurance, many through ACA
- A major concern is the rapid increase in deductibles on health insurance. Deductibles on employer-based health plans almost quadrupled during 2007-19, to an average of US$1,350 per person[(d)]
- The five biggest commercial health insurers are UnitedHealth, Anthem, Aetna, Cigna and Humana, together representing about 43% of the total insured US population[(d)]

## Rheumatoid Arthritis in the US:

### Patients:

- Prevalence: 0.6%[(e)]
- Women are about two to three times more likely to develop RA than men[(f)]

### Physicians:

- There are 6,013 providers in the US adult rheumatology workforce, representing a corresponding clinical FTE of 5,415[(a)]. This includes physicians, nurse practitioners (NPs), and physician assistants (PAs). 4,997 of these 5,415 FTE are rheumatologists, 190 PAs and 228 NPs

### Guidelines:

- RA: 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis

### Patient advocacy groups (PAGs)/Medical societies

- American College of Rheumatology (ACR)
- Arthritis Foundation
- Rheumatoid Arthritis Foundation

**Notes**: (1) Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older (2) The Affordable Care Act (ACA), commonly known as Obamacare, is a US law aimed at increasing access to affordable health insurance for Americans (3) Medicaid is a health coverage program for Americans with low income and resources which is jointly funded by the federal government and the states

**References**: (a) Battafarano, DF. et al. 2015 American College of Rheumatology Workforce Study: Supply and Demand Projections of Adult Rheumatology Workforce, 2015–2030. *Arthritis Care Res*, 70:617-626. doi:10.1002/acr.23518; (b) Barhamain AS, et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms. *Open Access Rheumatol.* 2017;28(9):139-150 doi: 10.2147/OARRR.S138830 (c) Newman ED, et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, *Arthritis Care Res (Hoboken)*. 2015;67(4):546-53 doi: 10.1002/acr.22479; (d) The Economist Intelligence Unit Healthcare Industry Report 2nd Quarter 2019; (e) Iqbal S, et al. Review of Rheumatoid Arthritis. US Pharm. 2019;44(1)(Specialty&Oncology suppl):8-11; (f) Rheumatoid Arthritis by the Numbers: Facts, Statistics, and You. What is Rheumatoid Arthritis? [online] https://www.healthline.com/health/rheumatoid-arthritis/facts-statistics-infographic#4 Accessed: 2 September 2019





Contents
Appendix - Center Reports

# The Rheumatology Center



## Santa Fe Rheumatology

| | | | |
|---|---|---|---|
| **Type** | — Santa Fe Rheumatology is a dedicated private center for rheumatology that is not affiliated to any hospital system. It is run by one rheumatologist[(a)] | **Locations** | — Santa Fe, New Mexico, Unites States[(a)] |
| **Core services** | — The center provides treatment for various rheumatic diseases such as RA, AS, PsA, osteoarthritis, Sjögren's syndrome and gout[(a)]<br>— Treatment offered includes injections and biologic medications for inflammatory conditions | **Population served** | — The center serves a population of ~2 million in New Mexico (the majority of which are in the northern half of the state). This includes the 80,000 residents of Santa Fe<br>— The center also provides services to patients from Colorado and other nearby states[(b)(c)(d)] |
| **Size** | — The team includes one rheumatologist, one nurse practitioner, two infusion nurses, one office manager, two medical assistants, one registered nurse and one receptionist. The registered nurse is also the research coordinator for all clinical trials[(a)(c)] | **Demographics** | — ~4,000 patients are treated annually across different therapy areas with 600 patients suffering from RA[(c)] |
| **Research scope** | — Santa Fe Rheumatology has a focus on research. The rheumatologist has co-authored papers in Arthritis and Rheumatism, the Journal of Rheumatology and other peer-reviewed journals[(a)]<br>— There are currently nine clinical trials being conducted at the center for rheumatic conditions | **Hours of availability** | — Monday, Tuesday, Thursday and Friday (09:00 – 16:30) |
| **Patient type catered to** | — Patients suffering from rheumatic diseases | | |

**References**: (a) Santa Fe Rheumatology [online] http://santaferheumatology.com Accessed 19 December 2019; (b) Data USA [online] https://datausa.io/profile/geo/santa-fe-nm/ Accessed on 19 December 2019; (c) KPMG Interviews with Santa Fe Rheumatology HCPs; (d) United States Census Bureau [online] Accessed on 19 December 2019

# The team

## Core team profiles

- 1 Rheumatologist
- 1 Nurse practitioner
- 2 Infusion nurses
- 2 Medical assistants
- 1 Registered nurse (research coordinator)
- 1 Office manager
- 1 Receptionist

## Key features of the care delivery team

### Supporting population management

- The center participated in the Rheumatoid Arthritis Practice Performance (RAPP) Project. This purpose of this project was to identify disease activity assessment measures and focus on population management

### Collaboration with specialists and healthcare professionals outside the center

- The team collaborates closely with external specialists to manage comorbidities in RA patients through a regular and efficient referrals process
- The types of specialists and HCPs include physiotherapists, occupational therapists, psychologists, pulmonologists, orthopaedic specialists, dermatologists, and ear, nose and throat (ENT) specialists

### Focus on patient wellness

- The rheumatologist has a focus on mind and body wellness. In order to raise awareness of the importance of patient wellbeing in the management of RA, the rheumatologist collaborates closely with mental health experts to conduct clinical research and develop patient resources

## Affiliations outside the center

(collaboration based on patient needs)

- Physiotherapists
- Occupational therapists
- Hand surgeon
- Orthopedic specialists
- Dermatologists
- Primary care physicians
- Pulmonologists

## Governance and processes

### Team meetings:

- Regular monthly collaboration on all cases
- Daily meetings between rheumatologist and nurse practitioner

### Protocols:

- 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis
- 2017 Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) and EULAR recommendations for the management of psoriatic arthritis
- 2015 Spondyloarthritis Research and Treatment Network (SPARTAN) Treatment of Ankylosing Spondylitis and Non-radiographic Axial Spondyloarthritis

### Patient records:

- Patient details are recorded electronically at every visit
- Records are also faxed directly to the PCPs and other specialists who are co-managing the patient

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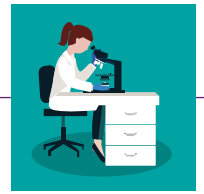
Appendix - Center Reports

# Overview of interventions in place for RA & comorbidities

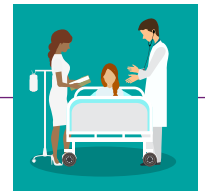
Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis & Treatment initiation
In secondary care



## Treatment and Management
Medical management



**Interventions**

### Raising awareness for arthritic conditions such as spondylitis among patients and HCPs[a]

- The center has partnered with Spondylitis Association of America and is an active member of the Spondylitis Research and Treatment Network. This enables the center to raise awareness about spondylitis and other similar conditions
- The rheumatologist provides lectures on topics such as RA, SpA and PsA in order to improve knowledge among external HCPs about these conditions. Articles/latest research are also shared on social media platforms, such as Twitter and Facebook, to create greater patient awareness[b][c]

### Training Primary Care Physicians (PCP)

- The center has previously offered training targeted at PCPs regarding biologics and long term RA treatment options, as well as other rheumatic conditions

### Population management (see case study page 222)

- The center aims to improve the management of RA across its catchment area. Part of this involved participating in the Rheumatoid Arthritis Practice Performance (RAPP) Project
- RAPP was a US-wide clinical quality-improvement initiative with a goal to monitor disease activity in real time, improve early RA diagnosis and support population management

### Patient information form[d]

- First-time patients are required to fill out a patient history form. Information is collected regarding existing insurance policies, medications, PCP history, family history and vaccines

### Direct contact with Rheumatologist

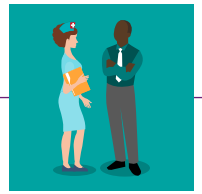
- All the patients are seen by the rheumatologist. The first and second appointment are considered crucial for RA diagnosis and preparation of the treatment plan

### Collaboration with other specialists and healthcare professionals outside the center (see case study page 224)

- The center collaborates with specialists from other hospitals/practices to treat and manage patients with RA comorbidities
- Patients are referred to external specialists as required via Electronic Medical Records (EMR). The centers then manage the referred patients in a coordinated manner
- The team collaborates with various comorbidity specialists and HCPs, such as physiotherapists, occupational therapists, psychologists, dermatologists, orthopaedics, pulmonologists and ENT specialists

**References**: (a) KPMG Interviews with Santa Fe Rheumatology HCPs; (b) Santa Fe Rheumatology: About Dr. Norton. [online] http://santaferheumatology.com/dr-norton/ Accessed 19 December 2019; (c) Twitter: Hillary Nortan. [online] https://twitter.com/DrHillaryNorton Accessed 23 December 2019; (d) Santa Fe Rheumatology: New Patient History 2016. [pdf] http://santaferheumatology.com/rheumatology/wp-content/uploads/2016/01/New-Patient-History-2016.pdf Accessed 23 December 2019

## Treatment and Management
Non-medical management



### Focus on patient wellness (see case study page 226)

— The rheumatologist is proactive in raising awareness about the importance of patient mind and body wellness amongst patients and HCPs

— Through partnership with various organizations (such as Spondylitis Association of America) and mental health experts, patients have been able to access health and wellness guidance

### Patient involvement in disease management

— Patients are actively involved from treatment initiation and play an integral part of developing their own care plan. They are part of the decision making process, enabling a collaboratively working relationship between the patient and rheumatologist

### Physiotherapy and occupational therapy

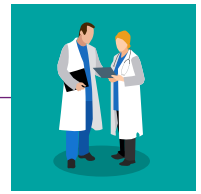
— Patients are frequently referred for physiotherapy and occupational therapy. This helps the patient limit the impact of RA on their day-to-day activities through regular exercise

### Psychological support

— Depression and stress are discussed openly by the team with the patient

— If required, patients are referred to a psychologist or PCP for psychological support

## Medical care & Follow-up
Monitoring of chronic disease/flare up



### Follow-up appointment

— Frequency of follow-up care and appointment times are dependent on how controlled the disease progression is and treatment response

— The first follow-up visit is generally two weeks after the appointment with the rheumatologist

— Once the diagnosis has been established and the treatment plan is in place, the frequency of follow-ups may very between every two weeks to once a year (depending on disease severity)

### Use of patient reported outcome (PROs)

— A variety of PRO measures are collected at every patient visit to monitor disease activity

— The measures utilized include the Physical Global Assessment (PGA) and composite scale of Clinical Disease Activity Index (CDAI)

### Research focus

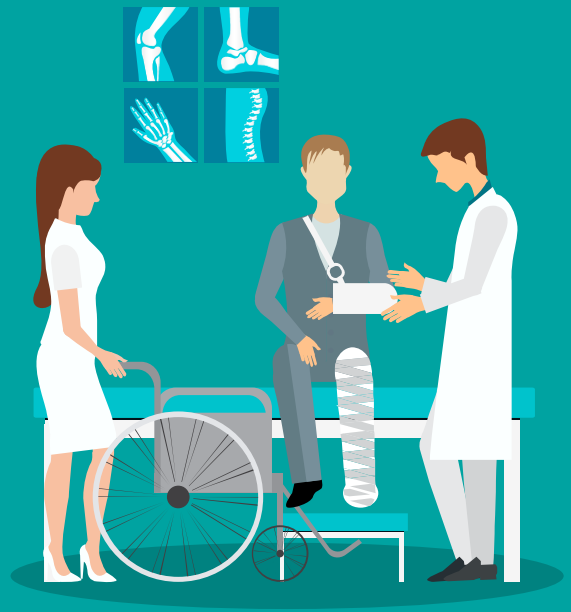
— The center participates in various clinical trials, including both industry and investigator led research

— The are nine clinical trials currently being run in RA, PsA, SA and AxSpA and gout[b]

— The rheumatologist is also collaborating with the University of Texas (Austin) by supporting patient referrals to the university's wellness trial

**References**: (a) KPMG Interviews with Santa Fe Rheumatology HCPs; (b) Santa Fe Rheumatology: Clinical trials. [online] http://santaferheumatology.com/clinical-trials/ Accessed 23 December 2019

# These interventions have improved outcomes



"I work closely with an orthopedic specialist too when I think it's surgical, and refer patients back and forth as well"

– Rheumatologist

KPMG

## How do you quantify the benefits in RA?

### Objective measures (KPIs):

— **Multi-biomarker disease activity (MBDA):** A test to measure 12 proteins, hormones and growth factors linked to RA[(a)]

— **Clinical Disease Activity Index (CDAI):** A composite score based on four PROs, including:[(a)]

- **Swollen 28-Joint Count (SJC[28]):** Includes joints of shoulders, elbows, wrists, knees etc.
- **Tender 28-Joint Count (TJC[28]):** Includes joints of shoulders, elbows, wrists, knees etc.
- **Physical Global Assessment (PGA):** Patient's self-assessment of overall RA disease activity on a scale of 1-10 (where 10 is maximum activity)
- **Evaluator's Global disease Activity (EGA):** Evaluator's assessment of overall RA disease activity on a scale of 1-10 (where 10 is maximum activity)

### PROs:

— **PGA:** Patient's self-assessment of overall RA health as well as activeness of the arthritis on a scale of 1-10 (where 10 is maximum activity)

### The center routinely measures comorbidity outcomes using:

— Comorbidity outcomes are not routinely measured; however,, the center has participated in CORRONA® registry to understand the impact of comorbidities

### Research PROs:

— Research PROs differ for each trial and a variety are measured, including Health Assessment Questionnaire with Disability Index (HAQDI)

## How have these interventions improved patient outcomes?

### RA

— Early diagnosis of RA in patients inhibits further deterioration of condition

— Potential for improved quality of care and treatment outcomes

### Comorbidities

— Increased access for patients to RA comorbidity specialists

**References**: (a) Myriad RBM: Vectra. [online]. https://myriadrbm.com/products-services/vectra-da/ Accessed 19 December 2019

# How can care be improved?

## What is next for the center?

### Overview: Continue to focus on population management

— **Why?** Rheumatological conditions have a large societal burden with a long term impact on the patient

— **How?** The center aims to implement the learnings from the RAPP project and to promote greater focus on the wider needs of the patient in order to deliver better comprehensive care. Other activities planned for population management include:

- Establishing physiotherapy and occupational therapy programs
- Revamping patient forms to focus on RA comorbidity symptoms
- Formalizing the interdisciplinary approach to include cardiovascular risk management for RA patients

### Overview: Improving the patient care experience through collaborative decision making

— **Why?** There is an opportunity to improve patient outcomes through effective patient-centered care[(a)]

— **How?** The center is currently working with the Global Healthy Living Foundation and its subsidiary Creaky Joints to help better understand and improve the patient experience

## What advice would you give less specialized centers?

### Overview of advice: Focus on delivering patient centric care

— **Why?** RA is a condition that can impact all aspects of a patient's life. As healthcare professionals, there is an opportunity to encourage patient involvement throughout the decision making process

— **How?** Provide patients with an environment where they feel comfortable to ask questions and participate in the preparation of their treatment plan

### Overview of advice: Foster internal and external team collaboration

— **Why?** In order to provide the long term treatment required by RA in an efficient manner, it is important to collaborate with multiple specialists

— **How?** As an independent body, the center is able to make decisions on who to partner with based on their preference

**References:** (a) Barton J, et. Al. Experience and Context Shape Patient and Clinician Goals For Treatment of Rheumatoid Arthritis: A Qualitative Study. *Arthritis Care Res (Hoboken)*. 2018;70(11): 1614–1620. doi: 10.1002/acr.23541

# Case studies


| Case study name | Page |
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| Collaboration with other specialists and healthcare professionals | 224 |
| Patient wellness | 226 |


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# Population Management

## Overview

— The center aims to improve the management of RA across its catchment area. Part of this involved participating in the Rheumatoid Arthritis Practice Performance (RAPP) Project

— RAPP was a US-wide clinical quality-improvement initiative with a goal to monitor disease activity in real time, improve early RA diagnosis and support population management

## What is the rationale?

— The processes and measures being utilized by rheumatologists for managing RA could be improved to support the accurate assessment of its impact on the patient population[a]

— Chronic diseases such as RA have a high burden on society and therefore require population management (PM) so that patients can attain a better quality of life[b]

## What are the key features of the intervention?

— The center participated in the Rheumatoid Arthritis Practice Performance (RAPP) Project, which has informed their current patient monitoring processes. Patient return visits are stratified based on disease activity rather than medication

### RAPP Project

— The project was comprised of US rheumatologists who voluntarily collaborated to improve patient outcomes at their practices, achieve Treat-to-Target goals, and focus resources on patients with the highest needs

— It included standardization of Disease Activity Assessment (DAA), and PM[c]

— More than 94 clinicians participated in the project, who collectively managed over 50,000 RA patients based on ICD-9 diagnoses and multi-biomarker disease activity tests

## What are the key features of the intervention? (cont.)

— All types of centers (single specialty, multi-specialty/ integrated system) participated in the project[c]

— The center aims to improve the management of the RA population through utilizing RAPP and the transforming care initiative offered by Interstate Postgraduate Medical Association (IPMA)

- IPMA offers courses for rheumatologists and support staff to learn and implement quality improvement processes in their practices
- The course begins with current care delivery processes. It then highlights strategies to collaborate with other centers for redesigning care and PM

## What are the activities undertaken?

### RAPP Project

— DAA measures were initially optimized in order to identify patients with the highest needs and prioritize them

— Examples of target or 'on time' DAA measures include:

- Three-months for diagnosis of patients with moderate or high disease activity
- Six-months for diagnosis of those with controlled or low disease activity

— DAA assessments were generally performed during multiple provider-patient encounters using a variety of clinical and laboratory measures

**References**: (a) Winkler A., et al. Rheumatoid Arthritis (RA) Disease Activity Assessment and Population Management Processes Used By Clinician Rheumatologistshttps. 2014 ACR/ARHP Annual Meeting [online] https://acrabstracts.org/abstract/rheumatoid-arthritis-ra-disease-activity-assessment-and-population-management-processes-used-by-clinician-rheumatologists/ Accessed 23 December 2019; (b) Sikes D, et al. Population Management of Rheumatoid Arthritis (RA) in Rheumatology Practices: A Quality Improvement Project. 2014 ACR/ARHP Annual Meeting [online] https://acrabstracts.org/abstract/population-management-of-rheumatoid-arthritis-ra-in-rheumatology-practices-a-quality-improvement-project/ Accessed 23 December 2019; (c) Arnold E, et al. Rheumatoid Arthritis Practice Performance Project Spots Problems in RA Management The Rheumatologist. 2015 [online] www.the-rheumatologist.org/article/rheumatoid-arthritis-practice-performance-project-spots-problems-in-ra-management/ Accessed 23 December 2019

## What are the activities undertaken? (cont.)

- Patients involved in RAPP were enrolled in an analytic RA disease population registry based on practice billing records. RAPP participants reported their disease activity measures, including CDAI, RAPID3, DAS28, SDAI, Physician Global Assessment, and/or a multi biomarker disease activity score
- Monthly Population Reports (MPR) were also built that included: patients registered, % who had ever been assessed, % with controlled-low DAA within 7 months, % with moderate-high DAA within 4 months, and % with controlled, low, moderate, and high disease activity
- Working lists were shared among the clinicians of patients lacking a timely DAA, and those with high disease activity
- Practices then managed their DAA care gaps (e.g., timely diagnosis) in high disease activity cohorts, and implemented PM processes through clinical process improvement projects

## What are the outcomes so far?

- At least one DAA measure was documented for over 58% of the total 16,979 enrolled patients
- 47% of the controlled-low disease activity cohort were assessed within 7 months, while 29% of the moderate-high disease activity cohort were assessed within 4 months

## Benefits

**Benefits to patients:**

- Better care and disease activity outcomes through on-time DAA and tracking of population measures

**Benefits to HCPs:**

- Better patient treatment outcomes through monitoring of patient progress
- Care gaps in DAA and disease control potentially identified that had not been seen previously
- Ability to alter follow up frequency and consultation time depending on patient progress

## Challenges

- DAA assessments were overdue in many practices. One of the primary causes behind delays was identified as limited time during a physician visit
- Large scale projects are difficult to manage, with challenges at all stages of data collection, analysis and implementation of findings

**References**: (a) Winkler A., et al. Rheumatoid Arthritis (RA) Disease Activity Assessment and Population Management Processes Used By Clinician Rheumatologistshttps. 2014 ACR/ARHP Annual Meeting [online] https://acrabstracts.org/abstract/rheumatoid-arthritis-ra-disease-activity-assessment-and-population-management-processes-used-by-clinician-rheumatologists/ Accessed 23 December 2019; (b) Sikes D, et al. Population Management of Rheumatoid Arthritis (RA) in Rheumatology Practices: A Quality Improvement Project. 2014 ACR/ARHP Annual Meeting [online] https://acrabstracts.org/abstract/population-management-of-rheumatoid-arthritis-ra-in-rheumatology-practices-a-quality-improvement-project/ Accessed 23 December 2019



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> We have stopped formally participating in RAPP; however, the idea has been carried into our everyday practice
>
> - Rheumatologist

# Collaboration with other specialists and healthcare professionals

## Overview

— The rheumatologist works with specialists and HCPs from other hospitals/centers to treat and manage RA comorbidities (e.g., interstitial lung disease [ILD], depression)

— Specialists for various comorbidities are present in the locality, which supports streamlined and collaborative patient care

## What is the rationale?

— There is a high prevalence of comorbidities and related risk factors among patients with RA. Comorbidities of RA includes osteoporosis, obesity and depression[(a)]

— Delayed diagnosis of comorbidities such as depression and ILD can severely hamper patient care, quality of life and may even increase chances of mortality as it leads to unchecked progression of these diseases[(b)(c)]

## What are the key features of the intervention?

— The center aims to provide comprehensive care for patients, by supporting them to cope with RA associated comorbidities

— The center frequently collaborates with other specialists and HCPs (outside the center), in order to promote the efficient management of patients and their records throughout their long term follow-ups

— This is a key focus on the center, on account of the center's rheumatologist being an advocate for managing the long term impact of rheumatic conditions on patients

— Other than the rheumatologist, the nurse practitioner plays a crucial role in collaborating with external specialists

## What are the activities undertaken?

Patient are referred to various external specialists and HCPs, including:[(d)]

### Pulmonologist

— The center refers to the local pulmonologist and encourages patients to visit the ILD center in the National Jewish Hospital in Denver where a rheumatologist with a pulmonary specialization is available. Patients with pulmonary hypertension are referred to the pulmonary hypertension clinic at UNMH in Albuquerque

— The pulmonologist helps patients to manage their breathing problems by prescribing drugs, oxygen therapy and suggesting aerobic fitness to improve patients' quality of life

### Psychologists & Psychiatrists

— Depression is openly discussed with patients

— Patients may be referred to PCPs for simple psychological treatments; however, in advanced cases, patients are offered participation in a clinical trial with a psychiatrist and psychologist in the University of Texas (Austin)

### Physiotherapist

— Collaboration with physiotherapists is undertaken in order to enable better self management of the disease, as patients are taught exercises and therapies to manage pain and improve their quality of life

### Occupational Therapist

— Patients are often referred to occupational therapists, who can advise patients on performing everyday activities or regarding the use assistive devices and splints to reduce pain[(e)]

**References**: (a) Dougados M, et al. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). *Ann Rheum Dis.* 2014;73(1):62-8. doi: 10.1136/annrheumdis-2013-204223 (b) Hamblin MJ, et al. Rheumatoid arthritis-associated interstitial lung disease: diagnostic dilemma. *Pulm Med.* 2011;2011:872120. doi:10.1155/2011/872120; (c) Withers MH, et al. Identification and Treatment Optimization of Comorbid Depression in Rheumatoid Arthritis. *Rheumatol Ther.* 2017;4(2):281–291. doi:10.1007/s40744-017-0072-4; (d) KPMG Interviews with Santa Fe Rheumatology HCPs; (e) Steultjens EEMJ, et al. Occupational therapy for rheumatoid arthritis. *Cochrane Database of Systematic Reviews* 2004;1. DOI: 10.1002/14651858.CD003114.pub2





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## What are the activities undertaken? (cont.)

### ENT Specialist

— Patients are referred to ENT specialists in cases of specific symptoms, like hearing loss and throat pain[(b)]

### Dermatologist

— The center has a effective working relationship with a local dermatologist, to whom patients are referred if required

— The dermatologist helps co-manage and diagnose skin conditions[(c)]

### Primary Care Physicians (PCP)

— PCPs are frequently referred to for various diseases such as cholesterol, diabetes, hypertension and depression

— Patients may be sent to PCPs or direct to the Emergency Room for some emergency cases

— The center's rheumatologist has conducted educational sessions for PCPs, focused on biologics and treatment of RA

### Orthopedics & Surgeons

— Patients may be referred to orthopaedic doctors or hand surgeons when cases require surgery. Patients are referred back to the center for continued care

## Benefits

### Benefits to patients:

— Improved access to RA comorbidity specialists

— Enhanced patient outcomes following shared decision making by specialists

### Benefits to HCPs:

— Specialized management of RA comorbidities through a collaborative care approach

— Increased knowledge amongst specialists regarding comorbidities

## Challenges

— Comorbidity specialists are not located within the center. Waiting time between referral and appointment can be highly variable, which can delay the treatment process

— Some comorbidity management programs (e.g., physiotherapy and occupational therapy) may not be covered by public payers. As the patients might be required to pay out of pocket, it can pose a barrier to patient access[(d)]

**References:** (a) KPMG Interviews with Santa Fe Rheumatology HCPs; (b) Pauna H., et al. Rheumatoid Arthritis and Otolaryngological Findings: Highlights. *Rheumatology (Sunnyvale)* 2015. 5(3) doi:10.4172/2161-1149.1000161; (c) Hata T, et al. Rheumatoid arthritis in dermatology. *Clinics in dermatology* 2006;24(5):430-7. doi:10.1016/j.clindermatol.2006.07.008. (d) Carvalho E, et al. Insurance Coverage, Costs, and Barriers to Care for Outpatient Musculoskeletal Therapy and Rehabilitation Services. *N C Med J.* 2017;78(5):312–314. doi:10.18043/ncm.78.5.312





> We refer to physiotherapists and occupational therapists quite often
>
> - Rheumatologist

# Patient wellness

## Overview

— The center promotes wellness of mind and physical fitness (sleep, nutrition and physical exercise) in order to help patients enhance their immune system and better manage their rheumatic disease

— Through partnership with various organizations (such as Spondylitis Association of America) and mental health experts, patients have been able to access health and wellness guidance

## What is the rationale?

— A lack of physical activity in RA patients (driven by body pain, limited access to gyms, and low knowledge about different exercises) may lead to increased risk of cardiovascular and psychological issues[a]

— Limited awareness about nutritional needs and non-adherence to recommended diets can lead to increased weight. This can further worsen RA symptoms[b]

## What are the key features of the intervention?

— The center aims to provide patients with adequate resources and structured guidance to better understand and manage their condition[c][d]

— The center's rheumatologist has a focus on raising awareness about rheumatic conditions, including the mind and body wellness of patients[c]

### Ways to improve patient wellness include:[b]

— Increasing exercise: patients are recommended to start with walking small distances and then gradually increase this distance

— Improving nutritional habits: a healthy diet is expected to reduce frequency of flares, while unhealthy foods are likely to increase flares

## What are the activities undertaken?

The center raises awareness about mind and body wellness through various sessions and campaigns[c][d]. To achieve this, the rheumatologist has:

— Partnered with various associations, such as Spondylitis Association of America, to increase awareness about AS, RA and other rheumatic conditions

— Conducted a session on psychoneuroimmunology during ACR 2019 (a conference by American College of Rheumatology) and other conferences, with a focus on emotions and RA

— Collaborated with mental health experts (principally a psychologist from University of Texas) to help patients with psychological requirements

— Supported patient health and wellness (including referring patients to Creaky Joints)

## What are the outcomes so far?

— Potential for improved patient outcomes following wellness specific lifestyle changes

## Challenges

— Limited willingness of patients to implement wellness/lifestyle related changes

— Physical activities and personal health is given less priority by the patients when compared to other day-to-day activities[b]

**References**: (a) Cooney JK, et al. Benefits of exercise in rheumatoid arthritis. *J Aging Res*. 2011;2011:681640. doi:10.4061/2011/681640; (b) Wellness for a Life Well-lived, Even With Rheumatic Disease, June 2018 [online] https://www.healio.com/rheumatology/rheumatoid-arthritis/news/print/healio-rheumatology/%7Be011ad62-b69a-4a42-9996-96e505920f3a%7D/wellness-for-a-life-well-lived-even-with-rheumatic-disease?page=3 Accessed 23 December 2019; (c) Santa Fe Rheumatology [online] http://santaferheumatology.com/ Accessed on Dec 20 2019; (d) KPMG Interviews with Santa Fe Rheumatology HCPs; (e) Twitter: Hillary Nortan [online] https://twitter.com/DrHillaryNorton Accessed 23 December 2019; (e) Finckh A, et al. The impact of obesity on the development and progression of rheumatoid arthritis *Annals of the Rheumatic Diseases* 2014;73:1911-1913

KPMG

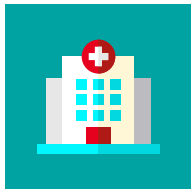
# University of Alabama at Birmingham Hospital

**Alabama, USA**

11 February 2020

**kpmg.com/uk**

# Summary



## Context

### Top-ranked Rheumatology department

- The University of Alabama at Birmingham (UAB) Division of Clinical Immunology and Rheumatology has a clinical rheumatology program which has been top-ranked by US News & World Report for more than 25 consecutive years[a]
- It serves a population of more than 200,000, including pediatric and adult patients for conditions including rheumatoid arthritis, osteoarthritis and other musculoskeletal conditions
- The UAB Division of Clinical Immunology and Rheumatology is one of the few places in the state that provide rheumatology care for Medicaid patients and uninsured patients

### Focus on research

- The center has a focus on research and a long-standing history of multidisciplinary collaborations. Previous research has enabled the development of automated technology to assess joint damage in RA[b]

### Comprehensive and tailored patient care

- Patients are offered advanced care and receive personalized medicine following the "treat-to-target" methodology[a]
- The physicians are trained in internal medicine and rheumatology, thereby allowing for comprehensive patient care of diseases that involve the joints, connective tissue and immune system

## Key strengths in the delivery of RA care

### Multidisciplinary approach to RA care

- Multidisciplinary teams consisting of rheumatologists, pharmacists, nurses and other healthcare professionals (HCPs) work together to provide holistic RA care

### Management of comorbidities

- UAB has several activities in place to support effective management of RA-associated comorbidities. These include establishing a network of comorbidity specialists and working alongside the pulmonology department to support RA patients with concomitant interstitial lung disease. The center also provides dietician consultations, for example, to support patients who have low bone mineral density with diet and nutrition recommendations
- Combined clinics with the dermatology department are also run by the center, to ensure patients with skin-related conditions (e.g psoriasis) can be managed in tandem with RA

### Integration of technology

- Patients can engage with HCPs and their own health through the app ArthritisPower, of which UAB researchers helped develop. ArthritisPower is a mobile Smartphone-based registry app that captures data between office visits
- A 'Virtual Arthritis Clinic' has been established by the center to promote ease of communication between patients and HCPs (e.g., calls/messages through a portal). It is intended that this will further facilitate patient education and allow for more modern and accurate treatments to be made available
- The center also uses RhEumAtic Disease Activity (READY). The comprehensive electronic app that collects Patient Reported Outcome (PRO) data during office visits, and can display the out-of-office data collected by the ArthritisPower app

## Key challenges faced in delivery of RA care

### Coordinating interdisciplinary care

- Adopting an interdisciplinary team approach can be challenging due to the need for extensive communication and coordination between the rheumatologists and other disciplines throughout a patient's treatment
- Consistently sharing accurate patient information requires time and dedication from the entire team. Any delay can therefore impact the treatment plan

References: (a) Division of Clinical Immunology and Rheumatology. University of Alabama [Website] https://www.uab.edu/medicine/rheumatology/. Accessed 16 Feb 2020. (b) DREAM Challenge to automate assessment of radiographic damage from rheumatoid arthritis. University of Alabama [Website] https://www.uab.edu/news/health/item/10933-dream-challenge-to-automate-assessment-of-radiographic-damage-from-rheumatoid-arthritis. Accessed 16 Feb 2020

# RA in the US: Healthcare system overview

## RA challenges in the US healthcare system:

- It is estimated that there will be a significant shortage of rheumatologists in the US by 2030. In 2015, the demand exceeded the supply of clinical providers by 700 (12.9%). This imbalance is expected to grow to a deficit of 4,133 providers (102%) by 2030[a]
- On an average, the lag time between a patient first experiencing symptoms and being referred to a rheumatologist is over 5 months in the US[b]
- Measurement of quality has been noted by the American College of Rheumatology to be essential to the care of patients with rheumatic disease. The abundance of quality measures can cause measurement fatigue and a discrepancy between consistency of measures routinely used in clinics[c]

## US healthcare system overview:

### Publically funded healthcare:

- Government spending on healthcare accounted for 81.8% of total health spending in 2016. The main channels of public spending are Medicare1, Affordable Care Act (ACA)2 subsidies and Medicaid3[d]
- Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older. Medicaid is a health coverage program for Americans with low income and resources. The Affordable Care Act (ACA), is a US law aimed at increasing access to affordable health insurance for Americans
- According to the Centers for Medicare & Medicaid Services (CMS), Medicare spending is likely to grow at an average rate of 7.4% during 2017-27, while spending on Medicaid and private prepaid plans will average 5.5% and 4.8%respectively[d]
- The ACA expanded Medicaid to make policies affordable, by extending the fund to subsidies nearly all low-income individuals with incomes at or below 138% of the poverty level[d]

### Privately funded healthcare

- Approximately 69.3% of Americans aged under 65 had private health cover in 2017[d]
- Those without employer policies buy their own insurance, many through ACA
- A major concern is the rapid increase in deductibles on health insurance. Deductibles on employer-based health plans almost quadrupled during 2007- 19, to an average of US$1,350 per person[d]
- The five biggest commercial health insurers are UnitedHealth, Anthem, Aetna, Cigna and Humana, together representing about 43% of the total insured US population[d]

## Rheumatoid Arthritis in the US:

### Patients:

- Prevalence: 0.6%[e]
- Women are about two to three times more likely to develop RA than men[f]

### Physicians:

- There are 6,013 providers in the US adult rheumatology workforce, representing a corresponding clinical FTE of 5,415(a). This includes physicians, nurse practitioners (NPs), and physician assistants (PAs). 4,997 of these 5,415 FTE are rheumatologists, 190 PAs and 228 NPs

### Guidelines:

- RA: 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis

### Patient advocacy groups (PAGs)/Medical societies

- American College of Rheumatology (ACR)
- Arthritis Foundation
- Rheumatoid Arthritis Foundation

Notes: (1) Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older (2) The Affordable Care Act (ACA), commonly known as Obamacare, is a US law aimed at increasing access to affordable health insurance for Americans (3) Medicaid is a health coverage program for Americans with low income and resources which is jointly funded by the federal government and states

Sources: (a) Battafarano, D. F. et al. 2015 American College of Rheumatology Workforce Study: Supply and Demand Projections of Adult Rheumatology Workforce, 2015–2030. Arthritis Care Res, 70: 617-626. doi:10.1002/acr.23518 (b) Barhamain AS et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms, Open Access Rheumatol. 2017 Jul 28;9:139-150 doi: 10.2147/OARRR.S138830 (c) Newman ED et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, Arthritis Care Res (Hoboken). 2015 Apr;67(4):546-53 doi: 10.1002/acr.22479 (d) The Economist Intelligence Unit Healthcare Industry Report 2nd Quarter 2019 (e) Sana Iqbal et al. Review of Rheumatoid Arthritis. US Pharm. 2019;44(1)(Specialty&Oncology suppl):8-11(f) https://www.healthline.com/health/rheumatoid-arthritis/facts-statistics-infographic#4 (Accessed on 2 September 2019)

# University of Alabama at Birmingham (UAB)

## UAB Hospital

| | | | |
|---|---|---|---|
| **Type** | — The University of Alabama at Birmingham (UAB) is a teaching hospital and Level 1 trauma center, with a focus on clinical research | **Locations** | — The hospital is located in Birmingham, Alabama |
| **Core services** | — UAB provides several specialist services across disciplines such as rheumatology, dermatology, oncology, cardiology, pediatrics and neuroscience | **Population served** | — Serves a population of over 209,880[(b)]<br>— 1.3 million annual outpatient visits to UAB physicians, and nearly 600,000 outpatient visits to the Kirklin Clinic of UAB Hospital's 33 specialities[(a)] |
| **Size(a)** | — UAB's multiple locations have a total capacity of 2,262 licensed beds<br>— 1,319 medical faculty<br>— 18,000 employees | **Demographics** | — Wide range of patients from pediatric to adults |

## The UAB Division of Clinical Immunology and Rheumatology

| | | | |
|---|---|---|---|
| **Services** | — Inpatient services at UAB Hospital<br>— Outpatient clinics at the Kirklin and UAB Whitaker clinics[(c)] | **Collaborations** | — Whilst working with a patient advocacy group, UAB has been awarded in excess of $1m. This included a $500k research award to Learning and Change, of which was intended to better integrate individual PRO data collected from ArthritisPower with clinical and laboratory data available from Electronic Health Records[(f)] |
| **Funding and Resources** | — State funding to the hospital in 2018 of $33.4m[(d)]<br>— $25.5m in grant funding in 2018[(e)] | **Teaching/ research scope** | — There is a focus on training future rheumatologists and immunologists, to provide them with the knowledge and skills for treating rheumatic diseases<br>— Over 50 clinical trials are conducted annually[(g)]<br>— The center has produced 226 publications (as of 2018)[(e)] |

Sources: (a) Overview of UAB Health System. UAB [Website] https://www.uabmedicine.org/documents/142028/207789/Facts-Figures-2016/48a8601c-ce6f-4f34-b0da-8052bf695234. Accessed 17 Feb 2020 (b) Birmingham, Alabama Population 2020. World Population Review [Website] http://worldpopulationreview.com/us-cities/birmingham-population/. Accessed 18 Feb 2020 (c) UAB Division of Clinical Immunology and Rheumatology About. UAB [Website] https://www.uab.edu/medicine/rheumatology/about. Accessed 18 Feb 2020 (d) 2018 Financial Report. UAB [pdf] https://www.uab.edu/financialaffairs/images/documents/reporting/2018-financial-report.pdf. Accessed 18 Feb 2020 (e) UAB Clinical Immunology & Rheumatology 2018 Facts & Figures. UAB [Website] https://www.uabmedicine.org/-/uab-clinical-immunology-rheumatology-2018-facts-figures. Accessed 18 Feb 2020 (f) Mayo and UAB Awarded $1 million Grant for Patient Research. RheumNow [Website] http://rheumnow.com/content/mayo-and-uab-awarded-1-million-grant-patient-research. Accessed 18 Feb 2020 (g) KPMG interviews

# The Rheumatology unit

## Overview of services

| Service Division | Outpatient service | Inpatient service |
|---|---|---|
| Duration of stay | Initial consultation: 40 mins<br>Follow-up consultation: 20 mins | |
| Hours of availability | 8:00 am – 17:00 pm | 24/7 |
| No. of RA patients seen | 8,000 – 9,000 per annum | |
| Patient type catered to | Adult and pediatric patients | Patients with disease flares |
| Services offered | — Provides care for patients with arthritis, autoimmune, and musculoskeletal diseases, such as rheumatoid arthritis, psoriatic arthritis, gout, scleroderma, and lupus<br>— Conducts joint ultrasound and ultrasound-guided biopsy<br>— Can collect and process both commercially available biomarkers (e.g., the Vectra test) and novel research biomarkers<br>— Provide on-site access to an infusion center, musculoskeletal ultrasound and a lab for specimen / sample / lab collection<br>— Tele-health visits are also provided through video and audio technology in order to facilitate remote care | |

Sources: (a) KPMG interviews





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# The team

## Core team profiles

- 20 rheumatologists
- 5 pediatric rheumatologists
- 5 fellows
- 3 immunologists
- 9 clinical research coordinators
- 4 pharmacists
- ~10 licensed nurse practitioners, registered nurses and medical assistants
- Administrative staff

## Key features of the care delivery team[(a)]

### Use of technology

- The ArthritisPower app captures Patient Recorded Outcome (PRO) data, such as symptoms, pain levels and fatigue. This data can then be used to inform and guide the health professionals (HCPs) when making their treatment decisions
- RhEumAtic Disease Activity (READY) is an electronic app that measures PROs and disease activity scores to support clinical decision making. It enables the HCP team to track medication changes and visually analyze their impact

### Virtual arthritis clinic

- Pharmacists are able to provide patient care between face-to-face visits with the rheumatologists
- Pharmacists can call and send messages via a portal to offer advice and support

### Patient education

- HCPs focus on informing patients about their conditions and potential comorbidities during and in-between visits (i.e. via apps)
- They also share videos to quell fears of medicine and treatment, of which is common amongst patients

### Working across departments

- By engaging different specialists during treatment, working across departments helps to manage and minimize the risk of developing comorbidities

## Affiliations outside the center

- Orthopedics
- Dermatology
- Pulmonology

## Governance and processes

### Team meetings:

- Clinical team meetings held twice a month

### Guidelines followed:

- American College of Rheumatology (ACR) Guidelines
- European League Against Rheumatism (EULAR) Recommendations

### Patient records:

- Digitalized PRO data, of which is available to view on a centralized interface

### Pharmacy:

- The Kirklin Clinic of UAB Hospital Pharmacy is open from 8 a.m. to 6 p.m., Monday through Friday
- The center also has its own speciality pharmacy that can directly deliver drugs to patient homes
- A 'drive-through injection' clinic for biologic drugs has also been established by the center
- Finally, the onsite and satellite infusion centers can provide drugs to patients

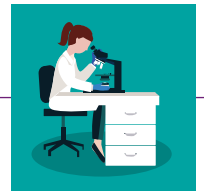
Sources: (a) KPMG interviews

# Overview of interventions in place for RA

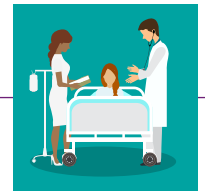
Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis & Treatment initiation
In secondary care



## Treatment and Management
Medical management



Interventions

### ACR Committee on Quality of Care
— UAB members of staff play an active role in the ACR Quality of Care committee, which focuses on quality-related activities. For instance, staff play a role in the development of classification and response criteria, practice guidelines, and quality measures

### Healthcare Professional (HCP) Education
— A rheumatologist from the center provides HCP education and shares RA knowledge by presenting at conferences, such as the Rheumatology Alliance of Louisiana

— Due to a holistic understanding of the condition, local rheumatologists can subsequently identify RA and its comorbidities in a more accurate manner

### Vaccination Rates
— The team focus on ensuring all patients are adequately vaccinated. By increasing vaccination rates, it reduces the threat of infection and development of comorbidities

### Using RhEumAtic Disease activitY (READY) to drive clinical decision making (see case study page 240)
— RhEumAtic Disease Activity (READY) is a comprehensive electronic app that captures and measures Patient Reported Outcomes (PRO) and disease activity scores

— By integrating data from multiple patients, it enables a more holistic evaluation of RA treatments, supports clinical decision making, and can guide medication changes

— The app also allows physicians to visually analyze the impact of any treatment changes over time

### ArthritisPower data (see case study page 242)
— ArthritisPower is a patient-driven app that was developed in conjunction with a patient advocacy group

— The app captures PRO data to facilitate comparison of patient data across time and support data-driven clinical decision making. Doctors can determine what data the app collects

— The app also communicates the risks and benefits of treatment through data and visuals to help quantify side effects

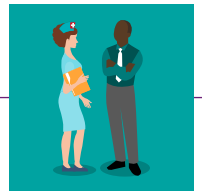
### Comorbidity management (see case study page 244)
— Rheumatologists actively work with other departments to provide holistic care (e.g., combined rheumatology and dermatology clinic), in order to prevent and manage RA comorbidities

### Role of nurse practitioner
— The nurse practitioner can diagnose, treat, order diagnostics testing, prescribe biologics and perform injection procedures. This allows the team to treat more patients

### Nurse-led education
— Nurses educate outpatients on how to manage RA comorbidities and provide information on steps that patients need to adhere to

### Pharmacist-led education
— Clinical pharmacists educate inpatients about adherence practices and managing comorbidities

## Treatment and Management
Non-medical management



### Patient education (see case study page 245)

- There is a focus on the education of patients about RA, its symptoms and potential comorbidities
- As part of this, there is education surrounding the 'fear of medication', which is a common issue amongst patients. It is achieved predominately through the medium of videos

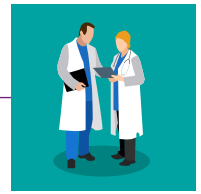
### Provision of rheumatology-focused bone health clinic

- The bone health clinic provides RA patients with access to a dietician and a physical therapist, who can provide education and physical therapy
- The focus is predominately on patient bone health; however,, the clinic also covers general weight management. Weight loss can improve joint pain and potentially decreases the use of RA-related medication. It also reduces the risk of developing other diseases such as cardiovascular disease

### Engagement with the patient community

- The center facilities patient engagement through webinars on research and other topics of interest
- Patients also engaged through frequent e-mails, such as newsletters and monthly reminders to complete PROs / record medication data

## Medical care & Follow-up
Monitoring of chronic disease/flare up



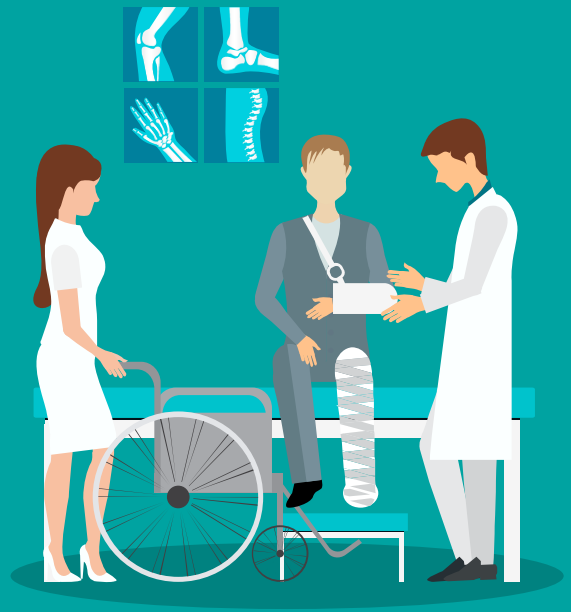
### Virtual Arthritis Clinic (see case study page 246)

- Pharmacists have direct, regular contact with patients through a Virtual Arthritis Clinic. This is conducted both in person and via the phone, patient portal, etc.
- The Virtual Arthritis Clinic allows pharmacists to provide care in-between appointments with the rheumatologist. Patients can make calls/send messages to the pharmacists on the UAB portal

### Use of a bio-registry

- Consent from RA patients is given for the collection of bio specimens to populate an onsite bio specimen repository, of which is searchable
- This repository integrates clinical data from electronic health records, PRO data from patients, health plan claims data, and bio specimens

# These interventions have improved outcomes



"You need to ask your patients at intervals how they are doing"

– Rheumatologist

## How do you quantify the benefits in RA?

### Objective measures (KPIs):

- **Routine Assessment of Patient Index Data 3 (RAPID3)[(a)]**: pooled index of the 3 Core Data Set measures used by the American College of Rheumatology: function, pain, and patient global estimate of status
- **Clinical Disease Activity Index (CDAI)[(b)]**: composite index used to measure RA disease activity through assessing 28 joints and considering patient and physician global valuation
- **Disease Activity Score 28 (DAS28)[(c)]**: utilized to measure patient outcomes in RA by examining 28 joints for disease activity

### PROs[(d)(1)]:

- **Physical Global Assessment (PGA)**: patient's self-assessment of overall RA disease activity on a scale 1-10, where 10 represents maximum activity
- **Visual Analog Scale (VAS)**: index to measure pain associated with the diseases
- **ArthritisPower**: electronic app that collects PRO data to support patients' ability to compare treatments, identify new treatments, and help find cures for RA
- **RhEumAtic Disease Activity (READY)**: electronic app that captures and measures PROs and disease activity scores for RA

### Center routinely measures comorbidity outcomes by:

- Monitoring data from the ArthritisPower and READY apps

## How have these interventions improved patient outcomes?

- An improvement in PRO data has been recorded according to data from the NIH PROMIS system[(d)]. This is a physical function measure that has been recently endorsed by the ACR as a functional status measure[(e)]

Notes: (1) Please refer to case study 'Using RhEumAtic Disease activitY (READY) to drive clinical decision making' and 'The development and use of ArthritisPower' for detailed information on PROs utilized

Sources: (a) Pincus T, et al. RAPID3, an index to assess and monitor patients with rheumatoid arthritis, without formal joint counts: similar results to DAS28 and CDAI in clinical trails and clinical care. Rheum Dis Clin North Am. 2009;35(4):773-8; (b) Singh H, et al. Use of Clinical Disease Activity Index Score for Assessment of Disease Activity in Rheumatoid Arthritis Patients: An Indian Experience. Arthritis. 2011; (c) van Riel PL, et al. The Disease Activity Score (DAS) and the Disease Activity Score using 28 joint counts (DAS28) in the management of rheumatoid arthritis. Clin Exp Rheumatol. 2016;34(5):40-44; (d) KPMG interviews; (e) Barber C, et al. 2019 American College of Rheumatology Recommended Patient-Reported Functional Status Assessment Measures in Rheumatoid Arthritis. Arthritis Care & Research. 2019;71(12):Vol. 71, No. 12, December 2019, pp 1531–1539





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# How can care be improved?

## What is next for the center?

### Overview: Further integration of technology[a]

**Why?**

— Improve patient experience through the use of technology by creating a seamless and interactive patient interface

**How?**

— Further development of how the ArthritisPower and READY apps are used in the patient pathway, to facilitate better treatment and monitoring of health

### Overview: Educate and train providers on how data can be used to enhance patient care[a]

**Why?**

— The center has developed multiple means of collecting patient data during and between office visits. It is now hoped that healthcare providers can be educated and trained on how to use this patient data to facilitate improvements to patient care

**How?**

— Provide training for healthcare providers on how to understand and utilize patient data collected

## What advice would you give less specialized centers?

### Overview of advice: To work across departments in order to mitigate comorbidities[a]

**Why?**

— There are many comorbidities linked to RA which, if managed sub-optimally, can exasperate the condition. If the comorbidities are managed in conjunction with RA, however, the impact can be mitigated

**How?**

— Active promotion of working across departments with multiple specialists when managing the patient's condition

### Overview of advice: Systematic screening for concomitant conditions[a]

**Why?**

— There are many RA comorbidities that can cause a patient's condition to deteriorate further but of which are not routinely looked for in a patient examination. Developing a systematic screening process for these conditions will help ensure the patient receives a faster diagnosis of these conditions and that these can be considered when formulating the treatment plan for RA

**How?**

— Development of a screening process for RA associated comorbidities to be used when assessing the patient

Sources: (a) KPMG interviews

# Case studies


| Case study name | Page number |
|---|---|
| Using RhEumAtic Disease activitY (READY) to drive clinical decision making | 240 |
| The development and use of ArthritisPower | 242 |
| Comorbidity management | 244 |
| Patient education | 245 |
| Virtual Arthritis Clinic | 246 |



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# Using RhEumAtic Disease activitY (READY) to drive clinical decision making

## Overview

- A rheumatologist from the center was involved in the creation of RhEumAtic Disease ActivitY (READY)
- READY is a comprehensive electronic app that captures and measures Patient Reported Outcomes (PRO) and disease activity scores to support clinical decision making and medication changes
- The app also enables physicians to track medication updates and visually analyze the impact of any treatment changes over time

KPMG

## What is the rationale?

- The increasing use of Health Information Technology (HIT), Electronic Health Records (EHRs), and the resulting increase in electronic clinical data collection, presents opportunities for advancing RA treatment[(a)]
- Mobile devices are increasingly being utilized for real-time data collection. Electronic patient-reported outcomes (ePRO) can be collected at physician office visits and between visits, which enriches the information available for care planning[(b)]

## What are the key features of the intervention?[(a)(c)]

- READY is a mobile health (mHealth) application that aims to create a shared platform by integrating data from patients and physicians, with a particular emphasis on arthritis disease activity
- READY is available on an electronic tablet and has been pilot tested at a rheumatology outpatient clinic
- Data is collected at and in-between office visits in order to expand the information available to reach the patient's goal
- READY allows physicians to select site-specific customizable questionnaires (instruments) from a 'library' of available instruments for patients with arthritis or other musculoskeletal and rheumatic diseases. Physicians can also select streamlined system flows, flexible collection locations, and real-time data reports

## What are the key features of the intervention?[(a)(c)] (cont.)

- Data captured in READY is customizable and can include:
  - Multi-dimensional Health Assessment Questionnaire (MDHAQ)
  - Pain Visual Analog Scale (VAS)
  - Fatigue VAS
  - Patient Global VAS
  - SF-12 (Short-Form 12, quality of life)
  - EQ5D (health utility)
  - RA Disease Activity Index (RADAI)
  - Patient Acceptable Symptom State (PASS)
  - Tender joint count (0–28)
  - Swollen joint count (0–28)
  - Physician Global VAS, and disease characteristics
- READY enables the data capture process to occur at the center using an electronic tablet. The data is available and graphed longitudinally in real-time
- The app also incorporates visual representations to provide graphical illustrations of joint pain

## What are the outcomes so far?

- READY has received a positive reception from both patients and physicians when used in trials[(c)]

Sources: (a) Winkler A., Mossell J., MacLaughlin E. et al. Rheumatoid Arthritis (RA) Disease Activity Assessment and Population Management Processes Used By Clinician Rheumatologistshttps. 2014 ACR/ARHP Annual Meeting. https://acrabstracts.org/abstract/rheumatoid-arthritis-ra-disease-activity-assessment-and-population-management-processes-used-by-clinician-rheumatologists/ Accessed 23 December 2019; (b) Sikes D., Crump G., Thomas K. et al. Population Management of Rheumatoid Arthritis (RA) in Rheumatology Practices: A Quality Improvement Project. 2014 ACR/ARHP Annual Meeting, https://acrabstracts.org/abstract/population-management-of-rheumatoid-arthritis-ra-in-rheumatology-practices-a-quality-improvement-project/ Accessed 23 December 2019; (c) Arnold E., Arnold W., Conaway D. et al. Rheumatoid Arthritis Practice Performance Project Spots Problems in RA Management The Rheumatologist. June 15, 2015 www.the-rheumatologist.org/article/rheumatoid-arthritis-practice-performance-project-spots-problems-in-ra-management/ Accessed 23 December 2019





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## Benefits[a]

- Simple to input information due to larger font size and ease of ‘tapping’
- Intuitive interface after initial guidance from staff
- Allows for patient and physician shared decision-making
- Real-time decision support to facilitate ‘tight control’ and T2T treatment strategies
- Clinical and research-related data collected in a time and cost-effective manner
- Allows for documentation to justify reimbursement for costly arthritis medications

## Challenges[a]

- Additional considerations need to be assessed, including logistics of technology, security, institutional support, financial support, and electronic design

## What else could be done?

- Streamlining the interface and app for ease of use
- Correcting the issues with the app (e.g., sensitivity) in order to improve patient and physician experience

## Tips to replicate this intervention

- Useable interface for the technology in order to achieve ease of use for patients and physicians
- Co-operation and willingness from physicians to change routines of working

Sources: (a) Yen PY, et al. Usability and Workflow Evaluation of RhEumAtic Disease activitY (READY). Applied Clinical Informatics. 2016;7(4):1007-1024

# The development and use of ArthritisPower

## Overview

— UAB has worked in conjunction with a support, education, advocacy and research organization to develop ArthritisPower

— ArthritisPower is a patient-led inflammatory arthritis app that was designed to support future research and help patients track their symptoms

— By capturing Patient Reported Outcomes (PROs) on a registry and sharing this information with the physicians / researchers, the app enables patients to track their symptoms and understand their condition better

## What is the rationale?

— The use of mobile health (mHealth) applications is recognized as promoting better management of chronic diseases through enhanced patient-provider communication and collaboration[c]

— Given the success of mHealth applications in the treatment of other chronic conditions[d], it is expected that using apps in the management of RA to capture data will drive similar improvements to the quality of care provided for RA[e]

## What are the key features of the intervention?[f]

— ArthritisPower is a smartphone app that collects and stores PROs in a patient data registry

— It utilized a measurement Information System (PROMIS®) that was developed by the National Institutes of Health

— The ArthritisPower app features:

- **Tracking:** Track health with customized assessments
- **Analytics:** View results over time, see how symptoms are changing, and identify causes of symptom changes
- **Share:** Share results with family, caregivers and healthcare professionals
- **Medication:** Keep track of treatments
- **Research Opportunities:** Participate in paid/unpaid surveys and studies

## What are the key features of the intervention?[f] (cont.)

- **Education:** Engage patients in-app, on the website, and on social media platforms through providing webinars on topics of interest
- **Email contact:** Quarterly newsletters, monthly reminders to complete PROs and medication data, announcements of special events and milestones, annual summary of participation and webinar alerts

— Technology features:

- Other PRO measures available in the library that can be quickly updated with new instruments as needed
- Custom surveys (via HIPAA-compliant SurveyMonkey API)

— Utilization of PROs and Real-World Data helps evaluate the impact of everyday practice and clinical decision making on patient outcomes

## What are the outcomes so far?

— To date, the app has captured 32,897 treatments and has provided 264,571 PROs[a]

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Sources: (a) ArthritisPower. About ArthritisPower. Home. [Website] https://arthritispower.creakyjoints.org/ Accessed: 2 March 2020; (b) Rheumatology Network. Five Reasons Your Patients Should Join Arthritis Power [website] https://www.rheumatologynetwork.com/rheumatoid-arthritis/five-reasons-your-patients-should-join-arthritis-power Accessed 2 March 2020; (c) Donevant S, et al. Utilization of Mobile Applications in Collaborative Patient-Provider Monitoring of Chronic Health Conditions. J Inform Nurs. 2018;3(2):6-11; (d) Mollard E, et al. Mobile Apps for Rheumatoid Arthritis: Opportunities and Challenges. Rheum Dis Clin North Am. 2019;45(2):197-209; (e) DixonW, et al. Using technology to support clinical care and research in rheumatoid arthritis. Curr Opin Rheumatol. 2018;30(3):276-281

## Benefits

- Integration of data from multiple patients enables a more holistic evaluation of the various treatments provided
- Provision of education within the app and ability to track symptoms assists with self-management of RA
- Direct links to the website of the associated patient advocacy group and various social media platforms provides ease of access to additional patient resources
- Patient access to webinars on research and other topics of interest promotes patient engagement
- Patients are empowered through greater understanding of the condition and control of treatment

## Challenges

- The data created may not be completely representative due to the population using the app being self-selected
- Some patients may not be able to use the app due to the use of technology creating a barrier to access
- Additional consideration may be required to ensure that the patient data collected is kept secure and protected

## What else could be done?

- Utilize the community of patients who are interested in providing data for research for other initiatives related to advancing the treatment of RA
- Facilitate and promote information sharing between physicians and patients

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# Comorbidity management

## Overview

— The center actively aims to prevent and manage RA associated comorbidities. There are combined clinics (e.g., Dermatology and Rheumatology) to ensure patients can access holistic care

## What is the rationale?

— Patients with RA are susceptible to developing certain conditions such as hypertension and osteoporosis. Managing comorbidities has therefore become essential to improving the patient's overall quality of life[a]

— Comorbidities can potentially deprioritize rheumatological care and delay treatment due to comorbidity-related complications[b]

— RA patients might not receive sufficient medical prevention however to deal with these comorbidity threats as wider problems may not be considered[a]

## What are the key features of the intervention?[c]

The UAB Rheumatology team works with a wide range of other specialties to offer holistic treatment plans:

— **Dermatology-rheumatology clinic:** Helps patients with conditions such as lupus, psoriatic arthritis and scleroderma

— **Cardiology:** Assesses hypertension and cardiovascular health

— **Pulmonology:** Supports patients with conditions such as Interstitial Lung Disease

— **Nutrition and dietetics:** Hosts group and 1-on-1 sessions to impart knowledge about diet (before and after meeting with the physician)

— **Physical therapy:** Provides physical therapy assessments to identify if additional patient support required

## What are the outcomes so far?

— Provision of improved RA-related care through using other specialists to develop understanding of RA

## Benefits

— Enhanced clinical outcomes as a result of more integrated patient care and better prioritization of comorbidities that require the most active attention

— Greater avoidance of complications through increased focus on preventive care

## Challenges

— Communication gaps may arise between healthcare providers

— Depending on the comorbidity, the team may not have the capacity or remit to provide the expertise required

## What else could be done?

— Increased focus on prevention and management of comorbidities in order to drive additional improvements to care

— Targeting where patients are lost in the care pathway

Sources: (a) Dougados M. Comorbidities in rheumatic arthritis. Curr Opin Rheumatol. 2016;28(3):282-288; (b) Rheumatoid Arthritis Advisor. Managing Comorbidity in RA: Multidisciplinary Care Team Model Essential. [Website] https://www.rheumatologyadvisor.com/home/rheumatoid-arthritis-advisor/managing-comorbidity-in-ra-multidisciplinary-care-team-model-essential/ Accessed: 2 March 2020; (c) KPMG interviews





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# Patient education

## Overview

— The center has a focus on providing patient education about RA, its symptoms and potential comorbidities

— Part of this education involves the use of videos and other forms of digital communication

## What is the rationale?

— Limited health literacy has been identified as having a negative impact on health outcomes, including an increased risk of hospital admission and inadequate disease management[a]

— Negative health outcomes are greatly exacerbated when patients are risk adverse and have a fear of medication. Educational resources however have been shown to provide the informational support needed to address these fears and promote positive outcomes[b]

— Multimedia tools, such as videos, have been shown as particularly effective in helping patients better understand and manage their disease[c]

## What are the key features of the intervention?[c]

— UAB have developed an education project targeted at patients who are adverse to receiving treatment. The educational videos aim to reframe medication and make it less intimidating for patients, through utilizing a behavioral economics perspective

— One of the major goals of the video program is also to inform patients about the treat-to-target methodology of RA management

— A pilot trial was tested online, with people watching videos and comparing their willingness to change their behavior before and after

## What are the key features of the intervention?[c] (cont.)

— The project also provides a central Patient Education Video System on television for inpatients, as well as one-to-one personalized training and educational videos[d]

— UAB is now co-developing a nascent system with the Hospital for Special Surgery / Cornell called PALS (Patient Activated Learning System), that will likely supplant the current system in place

## What are the outcomes so far?

— After the pilot trial of watching the videos, it was demonstrated that there was a positive change in propensity towards adhering to therapy

## What else could be done?

— The increased use of videos and technology in general RA patient education, due to videos being recognized as a successful medium of information. The 'edutainment' model may be particularly suited to those with low or limited health literacy[c]

## Challenges

— It can be difficult to encouraging patient engagement with their health and learning about their symptoms / potential comorbidities

Sources: (a) Baker DW, et al. Functional health literacy and the risk of hospital admission among Medicare managed care enrollees. Am J Public Health. 2002;92(8):1278–1283; (b) Mathijssen E, et al. Support needs for medication use and the suitability of eHealth technologies to address these needs: a focus group study of older patients with rheumatoid arthritis. Patient Prefer Adherence. 2018,12:349-358; (c) Lopez-Olivo MA, et al. Development and Pilot Testing of Multimedia Patient Education Tools for Patients With Knee Osteoarthritis, Osteoporosis, and Rheumatoid Arthritis. Arthritis Care Res. 2018;70(2):213-220; (d) UAB Medicine. How can I or my family learn more about my condition? [Website] https://www.uabmedicine.org/-/how-can-i-or-my-family-learn-more-about-my-condition Accessed 20 Feb 2020

# Virtual Arthritis Clinic

## Overview

— The Virtual Arthritis Clinic allows pharmacists to connect with patients to provide care in-between face-to-face visits to the rheumatology clinic

— The clinic encourages treatment adherence and provides patient education through facilitating more efficient communication channels (e.g., calls/messages through a portal)

## What is the rationale?

### Adherence to Medication

— Higher adherence to treatment has been shown to lower disease activity in RA patients[(a)]

— Whilst multiple factors can influence adherence to treatment, a key factor is patient contact time with physicians and other healthcare providers (HCPs), such as pharmacists[(b)]

— Patients can be encouraged to adhere to their treatment and achieve positive treatment outcomes through the use of a virtual clinic[(c)]

### Medication-related assistance

— Any doubts related to ongoing medication can potentially discourage a patient from continuing the therapy, of which can be prevented by pharmacist-led care[(c)(d)]

### Increased sharing of information

— Patients may feel more comfortable sharing information with pharmacists that they wouldn't otherwise want to share with a doctor[(c)]

## What are the key features of the intervention?[(c)]

— Pharmacists call or send messages on the portal to patients in order to check adherence to medication in-between patient visits[(c)]

— Pharmacists can call in case of failure of refill pickups or in response to automated calls[(d)]

## What are the outcomes so far?

— Patients who engaged with the clinic saw their adherence to medication increase 1.7 times[(c)]

## Benefits

— Better health outcomes as a result of higher adherence to medication

— Provision of a cost-effective solution to increase patient control of their condition

— Development of an informal pharmacist review process which can be utilized for patients on other medication

— Reduced financial burden on the healthcare system due to better patient outcomes

## Challenges

— Some patients may not have the resources or technical knowledge necessary to access and use the virtual clinic

## What else could be done?

— Further medication management, such as prescribing, adjusting and monitoring therapy, as well as identifying drug-related problems

— Provision of patient education, lifestyle guidance and counselling related to the medication

Sources: (a) Li L, et al. Medication adherence has an impact on disease activity in rheumatoid arthritis: a systemic review and meta-analysis. *Patient Prefer Adherence.* I2017;11:1343-1356; (b) Marengo M, et al. Improving treatment adherence in patients with rheumatoid arthritis: what are the options? *Int J Clin Rheumtol.* 2015;10(5):345-356; (c) KPMG interviews (d) US Medicine. Pharmacist Involvement Improves Gout Therapy Adherence for Veterans [website] https://www.usmedicine.com/clinical-topics/gout/pharmacist-involvement-improves-gout-therapy-adherence-for-veterans/ Accessed 2 March 2020





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KPMG

# Western Washington Medical Group

Washington State, United States of America

Visit conducted on 19th September 2019

kpmg.com/uk

# Summary

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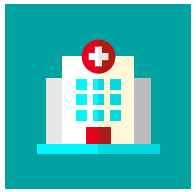


## Context

### The medical group

- The Western Washington Medical Group is a network of local, independent board-certified and board-eligible healthcare providers across the North Puget Sound region (Snohomish, Skagit and Island Counties) in Washington State, USA
- The group has a team of over 100 providers in more than 20 specialty areas across 26 centers
- The Arthritis Clinic is located at the Woodlands Specialty Center in Bothell

### Sharing best practices and HCP education

- The rheumatologists at the Arthritis Clinic provide education and training to other healthcare professionals in the state
- They teach at medical schools and deliver lectures at seminars organized by rheumatology associations such as the Washington Rheumatology Alliance and the Arthritis Foundation

### Ease of access to holistic care

- The Arthritis Clinic acts as a 'one-stop-shop' and has facilities to conduct multiple tests in-house (including labs, x-rays and ultrasound) as well as an infusion room. This therefore limits the number of visits patients have to make to the clinic

## Key strengths in the delivery of RA care

### Provision of holistic care

- The team at the Arthritis Clinic provides holistic care to patients. The rheumatologists aim to invest in face time with patients to understand their wellbeing and personal issues
- The rheumatologists manage multiple aspects of the patient's overall health and provide advice and guidance on occupational therapy, physical therapy and psycho-social support

### Utilizing software to facilitate clinical care

- The Arthritis Clinic uses a software application which enables rheumatologists to clinically manage patients with rheumatic disease, and to track biologic and disease modifying anti-rheumatic drugs (DMARD) effectiveness via a color-coded anatomical diagram
- The software can also be accessed on a mobile device through an app
- Rheumatologists can assess disease activity in patients, visually explain treatment to them and also make a decision on whether to escalate, de-escalate or maintain the current treatment

### Patient education

- The clinic has a strong emphasis on patient education. The rheumatologists use interactive boards, models and diagrams to explain RA to patients
- During the patient's first visit, the rheumatologists provide them with an overview of RA, treatment options and other related information

## Key challenges faced in delivery of RA care

### Access to specialized care

- Access to care is a major challenge, as there is a limited number of rheumatologists at the clinic
- The center may receive referrals for diseases which do not require a rheumatologist's input. For example, rheumatologists receive osteoarthritis referrals from PCPs and orthopedic surgeons which may not require rheumatology management

### Variable financial coverage for medication

- Enabling access to the optimal medication can be challenging due to financial roadblocks and variable coverage with insurers and pharmacy benefit managers
- Every provider has a different set of rules, predeterminations and restrictions which directly impacts which medications each patient can be prescribed

# RA in the US: Healthcare system overview

## RA challenges in the US healthcare system:

- It is estimated that there will be a significant shortage of rheumatologists in the US by 2030. In 2015, the demand exceeded the supply of clinical providers by 700 (12.9%). This imbalance is expected to grow to a deficit of 4,133 providers (102%) by 2030[a]
- On an average, the lag time between a patient first experiencing symptoms and being referred to a rheumatologist is over 5 months in the US[b]
- Measurement of quality has been noted by the American College of Rheumatology to be essential to the care of patients with rheumatic disease. The abundance of quality measures can cause measurement fatigue and a discrepancy between consistency of measures routinely used in clinics[c]

## US healthcare system overview:

### Publically funded healthcare:

- Government spending on healthcare accounted for 81.8% of total health spending in 2016. The main channels of public spending are Medicare1, Affordable Care Act (ACA)2 subsidies and Medicaid3[d]
- Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older. Medicaid is a health coverage program for Americans with low income and resources. The Affordable Care Act (ACA), is a US law aimed at increasing access to affordable health insurance for Americans
- According to the Centers for Medicare & Medicaid Services (CMS), Medicare spending is likely to grow at an average rate of 7.4% during 2017-27, while spending on Medicaid and private prepaid plans will average 5.5% and 4.8%respectively[d]
- The ACA expanded Medicaid to make policies affordable, by extending the fund to subsidies nearly all low-income individuals with incomes at or below 138% of the poverty level[d]

### Privately funded healthcare

- Approximately 69.3% of Americans aged under 65 had private health cover in 2017[d]
- Those without employer policies buy their own insurance, many through ACA
- A major concern is the rapid increase in deductibles on health insurance. Deductibles on employer-based health plans almost quadrupled during 2007-19, to an average of US$1,350 per person[d]
- The five biggest commercial health insurers are UnitedHealth, Anthem, Aetna, Cigna and Humana, together representing about 43% of the total insured US population[d]

## Rheumatoid Arthritis in the US:

### Patients:

- Prevalence: 0.6%[e]
- Women are about two to three times more likely to develop RA than men[f]

### Physicians:

- There are 6,013 providers in the US adult rheumatology workforce, representing a corresponding clinical FTE of 5,415(a). This includes physicians, nurse practitioners (NPs), and physician assistants (PAs). 4,997 of these 5,415 FTE are rheumatologists, 190 PAs and 228 NPs

### Guidelines:

- RA: 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis

### Patient advocacy groups (PAGs)/Medical societies

- American College of Rheumatology (ACR)
- Arthritis Foundation
- Rheumatoid Arthritis Foundation

Notes: (1) Medicare is a national health insurance program in the US which primarily provides health insurance to Americans aged 65 and older (2) The Affordable Care Act (ACA), commonly known as Obamacare, is a US law aimed at increasing access to affordable health insurance for Americans (3) Medicaid is a health coverage program for Americans with low income and resources which is jointly funded by the federal government and the states

References: (a) Battafarano, D. F. et al. 2015 American College of Rheumatology Workforce Study: Supply and Demand Projections of Adult Rheumatology Workforce, 2015–2030. Arthritis Care Res, 70: 617-626. doi:10.1002/acr.23518; (b) Barhamain AS et al. The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms, Open Access Rheumatol. 2017 Jul 28;9:139-150 doi: 10.2147/OARRR.S138830; (c) Newman ED et al. Improving the quality of care of patients with rheumatic disease using patient-centric electronic redesign software, Arthritis Care Res (Hoboken). 2015 Apr;67(4):546-53 doi: 10.1002/acr.22479; (d) The Economist Intelligence Unit Healthcare Industry Report 2nd Quarter 2019; (e) Sana Iqbal et al. Review of Rheumatoid Arthritis. US Pharm. 2019;44(1)(Specialty&Oncology suppl):8-11; (f) https://www.healthline.com/health/rheumatoid-arthritis/facts-statistics-infographic#4 (Accessed on 2 September 2019)

# The Arthritis Clinic



## Western Washington Medical Group

| | | | |
|---|---|---|---|
| **Type** | — Western Washington Medical Group is a network of local, independent board-certified or board-eligible healthcare providers | **Locations** | — Centers are located at 20 sites across the North Puget Sound region (Snohomish, Skagit and Island Counties) in Washington State, USA[(b)] |
| **Core services** | — Provides care to patients suffering from a wide range of diseases and has more than 20 specialty departments in areas such as rheumatology, cardiology, diabetes, nutrition, endocrinology, gastroenterology, nephrology, psychology and podiatry | **Population served** | — The center serves patients from North Seattle, Everett County and the towns of Redmond, Bellevue and Woodinville<br>— The center also cares for patients from all over Washington state and some from Alaska, Montana and California |
| **Size** | — Western Washington Medical Group has a team of over 100 providers in 26 centers[(a)] | **Demographics** | — Wide range of patients from pediatric to adults |

## The Arthritis Clinic

| | | | |
|---|---|---|---|
| **Services** | — Outpatient clinic for arthritis, autoimmune diseases, and other medical musculoskeletal problems<br>— Outpatient infusion center for management of arthritis and other rheumatologic conditions using intravenous medications<br>— Other services include on-site lab services and clinical research trials | **Locations** | — The Arthritis Clinic is located at the Woodlands Specialty Center in Bothell |
| **Funding and Resources** | — Western Washington Medical Group is provider-owned and run<br>— Funding is be received through insurance payments and research grants | **Teaching scope** | — The rheumatologists at the Arthritis Clinic provide education and training to other healthcare professionals through seminars and lectures organized by rheumatology associations such as the Washington Rheumatology Alliance and the Arthritis Foundation<br>— They also teach physiotherapists, osteopathy students and nursing students at the University of Washington School of Medicine |

References: (a) About us. Western Washington Medical Group website. https://www.wwmedgroup.com/about-us/ Accessed 10 October 2019; (b) Locations. Western Washington Medical Group website. https://www.wwmedgroup.com/locations/ Accessed 10 October 2019

| Service Division | Outpatient clinic | Infusion center |
|---|---|---|
| Duration of stay | First consultation: 1 hour<br>Follow-up: 30 minutes | Average length of stay is approximately 1 hour (this can range between 30 minutes and 6 hours depending on the medication) |
| Hours of availability | Monday – Friday (08:00 – 17:30) | Monday – Friday (08:00 – 17:30) |
| Capacity (no. of beds/rooms) | N/A | 5 chairs |
| No. of patients seen | ~1,800 patients (600 per rheumatologist)<br>~18 patients are seen daily by each rheumatologist | 135 patients per month (8-10 patients per day) |
| Patient type catered to | All rheumatology patients with arthritis, autoimmune diseases, and other medical musculoskeletal problems | Patients with moderate-severe arthritis and other rheumatologic conditions |
| Services offered | — On-site laboratory tests<br>— X-ray<br>— Ultrasound | — Biologic infusion for patients with RA as well as patients from other departments (for example, patients with Inflammatory Bowed Disease) |

# The team

## Core team profiles

- 3 rheumatologists
- 1 nurse practitioner
- 4 medical assistants
- 2 registered nurses
- 1 research coordinator
- 2 front office clerks

## Key features of the care delivery team

### Provides holistic care

- The team focuses on providing holistic care to patients. The rheumatologists manage multiple aspects of the patient's overall health and provide advice and guidance on occupational therapy, physical therapy and psycho-social support

### Focus on HCP and patient education

- The rheumatologists at the clinic focus on HCP education and conduct lectures across Washington state for fellow rheumatologists, physiotherapists, and medical students (osteopathy and nursing students)
- The rheumatologists also invest time with new patients to explain and educate them on RA and self-management techniques. Topics include treatment options and stress reduction

### Integrated with PCPs

- The Western Washington Medical Group has 5 PCPs who collaborate and refer patients to the rheumatologists. PCPs and specialists (including dermatologists, gastroenterologists and neurologists) from external centers in the vicinity also refer patients to the clinic

## Affiliations outside the center

- Counsellors
- Nutritionist
- Naturopathic doctor

## Governance and processes

### Team meetings:

- **Business meetings:** The 3 rheumatologists and the office manager meet every Tuesday to discuss the operational management of the center. Topics include how to advertise for new patients, how to order new drugs, changes of suppliers, insurances updates etc.
- **Research meetings:** The 3 rheumatologists and the research coordinator meet every Thursday to discuss the 9 on-going interventional and observational research studies, as well as potential future studies. Occasionally investigator initiated studies are conducted as well

### Protocols:

- 2019 American College of Rheumatology (ACR) Guideline for the Treatment of Rheumatoid Arthritis
- 2017 Clinical Practice Guidelines for Rheumatoid Arthritis (United Rheumatology)

### Patient records:

- Electronic medical records (EMR) are used

### Pharmacy:

- The clinic works with pharmacy benefit managers to determine which medications each patient can be prescribed and to ensure that patients have access to optimal medication
- Every provider has a different set of rules and restrictions which can directly impact the medication each patient can be prescribed by the clinic

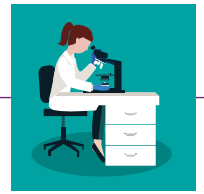
Sources: (a) KPMG interviews

# Overview of interventions in place for RA

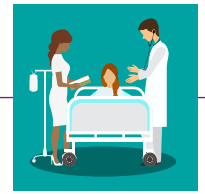
Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis & Treatment initiation
In secondary care



## Treatment and Management
Medical management



**Interventions**

### Multiple methods of referral
- Primary care physicians (PCPs) from Western Washington Medical Group and external centers refer patients with suspicion or confirmed RA to the Arthritis Clinic
- Other specialists, such as dermatologists, gastroenterologists and neurologists, also do the same

### Pre-screening of patients
- Referrals are screened to identify and prioritize patients who are likely to have RA (see office-visit questionnaire)
- The first goal of the clinic is to help patients receive a diagnosis, or to confirm the diagnosis based on their medical issues
- The physicians at the clinic will only act as consultants for some patients. Diagnoses or disease states which do not require ongoing rheumatologic care are referred back to the PCPs or referring physician with a recommendation for treatment
- The wait time for a first visit is ~3 months. However, thanks to the use of a dedicated software (see case study page 262), wait times can be reduced when there is suspicion of inflammation in referred patients

### Office-visit questionnaire
- First-time patients are required to fill an onboarding form which also contains a health assessment questionnaire to assess the joint condition of the patient
- The questionnaire includes questions on patient mobility, current medication, major pain points and a list of symptoms for the patients to check (see page 255 for diagram)

### Initial patient assessment
- The duration of a first consultation is usually 1 hour and the rheumatologists spend time educating the patient
- During the assessment, the rheumatologists use interactive boards, models and diagrams to educate patients about RA and all the treatment options available

### One-stop testing
- The rheumatologist orders lab tests for patients after seeing the patient. All the tests are available within the clinic including labs, x-rays, infusion, ultrasound, etc.

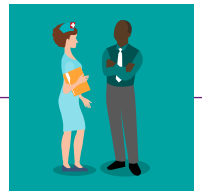
### Clinical trials and research studies
- The clinic has nine interventional and observational research studies under way. Patient profiles are screened via a software to assess if a patient may be a suitable candidate for an active study

### Use of software application (see case study page 262)
- The clinic uses a software application which enables rheumatologists to clinically follow patients with rheumatic disease, and to track biologic and DMARD effectiveness via a point-and-click, color-coded anatomical diagram
- The application flags when a particular case or any other item need the rheumatologist's attention. For instance, when a patient has high disease activity
- It allows rheumatologists to assess disease activity in patients, visually explain treatment to patients and also make a decision on whether to escalate, de-escalate or maintain the current treatment

### Patient education (see case study page 264)
- The rheumatologists focus on patient education and spend 1 hour with new patients to educate them about RA and its treatment options. Topics covered include treatment options, stress reduction, good clean living, etc.
- The rheumatologists use interactive boards, models and diagrams to explain RA to the patients

### Access to medication
- The center contacts pharmaceutical companies to obtain samples, pamphlets and educational material
- The medical assistant completes the pre-authorization of all the drugs

## Treatment and Management
### Non-medical management



### Nutritionist

— The clinic has a nutritionist who evaluates the patient's diet and provides information about anti-inflammatory food and other personalized advice

### Counsellor

— A counsellor is available at the clinic to provide patients with psycho-social support

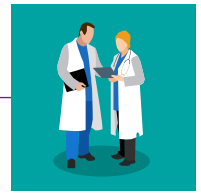
### Provision of holistic care (see case study page 266)

— The rheumatologists treat patients holistically and aim to support multiple aspects of the patient's overall health

### Naturopathic medicine

— For patients who prefer non-western medicine, the center refers to naturopathic doctors who use herbs, acupuncture and other non-western medicine to complement the patient's medical treatment

## Medical care & Follow-up
### Monitoring of chronic disease/flare up



### Infusion suite for biologics administration

— The clinic has an infusion suite for patients with RA who are on biologics

— The suite has one (or more) rheumatologist on-site and 2 registered nurses to administer biologics to patients

### Nurse practitioner

— The nurse practitioner sees the less complicated follow-up patients and discusses the treatment plan co-developed between the rheumatologist and patient

— Patients can also visit the nurse practitioner in urgent cases (if the rheumatologist is occupied)

### On-call rheumatologist

— A rheumatologist is on-call and available for support at all times

— For serious cases, the patients are referred to the Emergency Room

### Voice mail

— If the rheumatologists or their assistants are not in the office, each assistant has a voice mailbox to take non-emergent incoming calls from patients and pharmacies

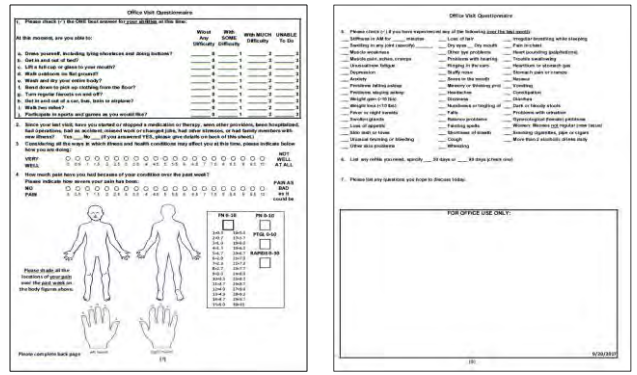
### Use of disease activity measures and patient reported outcome (PROs)

— The clinic utilizes multiple indices to measure disease activity and patient reported outcomes including CDAI, DAS28, SDAI and Rapid 3

— Therapy is modified for patient who have high disease activity

### Prescription refills

— The clinic has facilities to enable patients to obtain a prescription refill. The new patient document informs patients with information regarding refills and advises them to plan accordingly



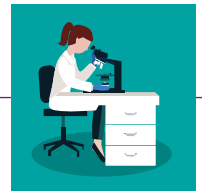
Office visit questionnaire

# Overview of interventions in place for RA comorbidities

Case study available

## Awareness & Prevention
Symptom identification

## Referral, Diagnosis
In secondary care



## Treatment and Management
Medical management

Interventions

### HCP education (see case study page 264)

- The rheumatologists at the Arthritis Clinic provide education and training to other healthcare professionals in the state
- The rheumatologists deliver lectures at seminars organized by rheumatology associations such as the Washington Rheumatology Alliance and the Arthritis Foundation
- Topics covered at these lectures include:
  - Gender Differences in Rheumatologic Disease
  - Regenerative Medicine and Rheumatoid Arthritis
  - Rheumatology, Immunology, and Immuno-Oncology Intersect: Navigating the Complexities of Immune Checkpoint Inhibition, Autoimmunity, and Immune-Related Adverse Effects

### Use of software application (see case study page 262)

- The software application is integrated with the electronic medical records and highlights the patient's comorbidities to the rheumatologist

### Monitoring blood pressure

- Patients with RA have a higher risk of developing cardiovascular disease
- To appropriately monitor the cardiovascular risk, the rheumatologist measures the patient's blood pressure at each visit
- If treatment is required, the rheumatologist refers the patient back to the PCP for cardiovascular management
- If urgent care is required, the rheumatologist can refer to the cardiology team within the group, a near-by hospital or walk-in clinic, depending on the care required

### Holistic care (see case study page 266)

- The rheumatologists treat patients holistically, manage multiple aspects of the patient's overall health and provide advice and guidance on occupational therapy, physical therapy and psycho-social support

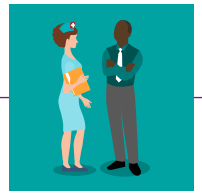
### Multi-speciality care

- Rheumatologists can refer to several specialty departments within the wider group/Seattle area to manage RA comorbidities, including:
  - **Cardiology:** specializes in clinical cardiology, interventional cardiology, vascular and endovascular medicine and congestive heart failure
  - **Endocrinology:** treats metabolic conditions and diseases including diabetes, dyslipidemia
  - **Orthopedics:** delivers highly personalized care to help patients return to optimal health and activity
  - **Pulmonary:** diagnoses and treats disorders of the lungs and respiratory system, including asthma, emphysema and pulmonary fibrosis
  - **Podiatry:** focuses on preventing, diagnosing and treating conditions associated with the foot and ankle
  - **Psychology:** provides mental health care to patients experiencing psychological disorders. Conducts neuropsychological and clinical psychological evaluations

### Patient access to their health information

- Patients are given access to their health information through the Patient Portal
- The Arthritis Clinic also has the ability to enable certain mobile apps that meet requisite technical specifications and security requirements to enable patients to access their health information in a safe and secure way

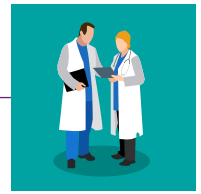
## Treatment and Management
Non-medical management



### Referral to counsellors

— Patients are referred to a counsellor at the clinic who provides psycho-social support

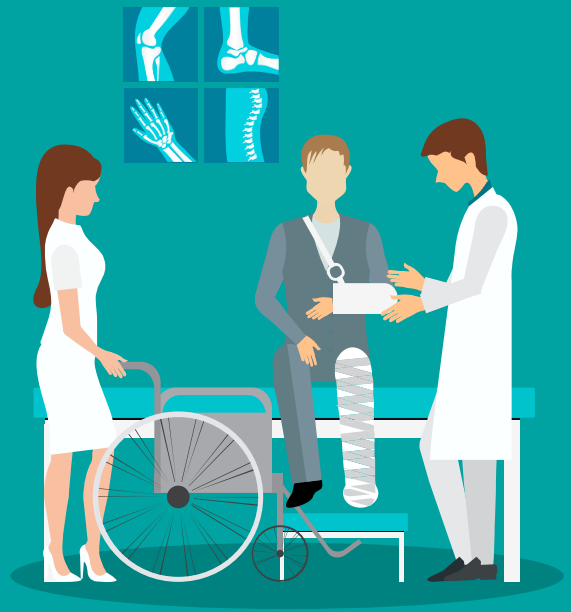
## Follow-up
Monitoring of chronic disease/flare up



### Referral to PCPs

— The rheumatologists at the Arthritis Clinic refer patients back to the PCPs along with notes regarding their assessment and suggested treatment to manage comorbidities

# These interventions have improved outcomes



"The ultimate goal is for the patients to feel normal"

– Rheumatologist

## How do you quantify the benefits in RA?

### Objective measures (KPIs):

- **Disease Activity Score 28 (DAS28):** used to measure patient outcomes in RA by examining 28 joints for disease activity
- **Clinical Disease Activity Index (CDAI):** a composite index for assessing disease activity based on the summation of the swollen/tender joint count of 28 joints along with patient and physician assessment on a visual analogue scale[(a)]
- **DAS CRP:** Describes severity of RA using clinical and laboratory data, specifically C-reactive protein or CRP (blood test marker for inflammation in the body)
- **Simple Disease Activity Index (SDAI):** The numerical sum of five outcome parameters: tender and swollen joint count, patient and physician global assessment of disease activity and level of C-reactive protein[(b)]
- **Vectra DA scores:** 12 biomarkers are used to assess disease activity and produce a composite score

### PROs:

- **Rapid 3:** RAPID3 (Routine Assessment of Patient Index Data 3) is a pooled index of 3 patient-reported core RA measures (function, pain, and patient global estimate of status)

### Center routinely measures comorbidity outcomes by:

- **Objective measures:**
  - Health Assessment Questionnaire (HAQ) and Routine Assessment of Patient Index Data 3 (RAPID3)

## How have these interventions improved patient outcomes?

### RA and associated comorbidities

- By measuring outcomes, the center is able to respond more rapidly to a required prescription change or instigate an early referral if a patient is not at their treatment goal

References: (a) van Gestel AM, Haagsma CJ, van Riel PL, Validation of rheumatoid arthritis improvement criteria that include simplified joint counts., Arthritis Rheum. 1998 Oct; 41(10):1845-50; (b) Smolen JS, Breedveld FC, Schiff MH, et al. A simplified disease activity index for rheumatoid arthritis for use in clinical practice. Rheumatology (Oxford). 2003 Feb;42(2):244-57

# How can care be improved?

## What is next for the center?

### Overview: Creating a multidisciplinary team

**Why?**

— Currently, the clinic does not have a multidisciplinary team and the rheumatologists manage multiple aspects of the patient's health

**How?**

— The clinic plans to create a multidisciplinary team consisting of rheumatologists, nurses, nutritionists, counsellors and other specialists to provide holistic care to patients with RA

## What advice would you give less specialized centers?

### Overview of advice: Ensure alignment on team objective and goals

**Why?**

— Aligning the team towards a common goal can help improve patient outcomes

**How?**

— Rheumatologists should assess whether potential partners have similar objectives and goals. With a common objective in mind, rheumatologists can assess how to work together, define their roles and focus on team progress

### Overview of advice: Focus on optimizing patient outcomes

**Why?**

— Patient outcomes help in assessing disease activity. Altering treatment methods based on patient outcomes can help to optimize patient care and lower disease activity

**How?**

— A center should regularly measure patient outcomes to assess disease activity. Some patient outcomes for RA to consider measuring are DAS 28, CDAI and Rapid3

— Patient treatment decisions should be based on results of the patient outcomes. For patients with high disease activity, treatment can be changed and for low disease activity, the treatment could potentially be withdrawn

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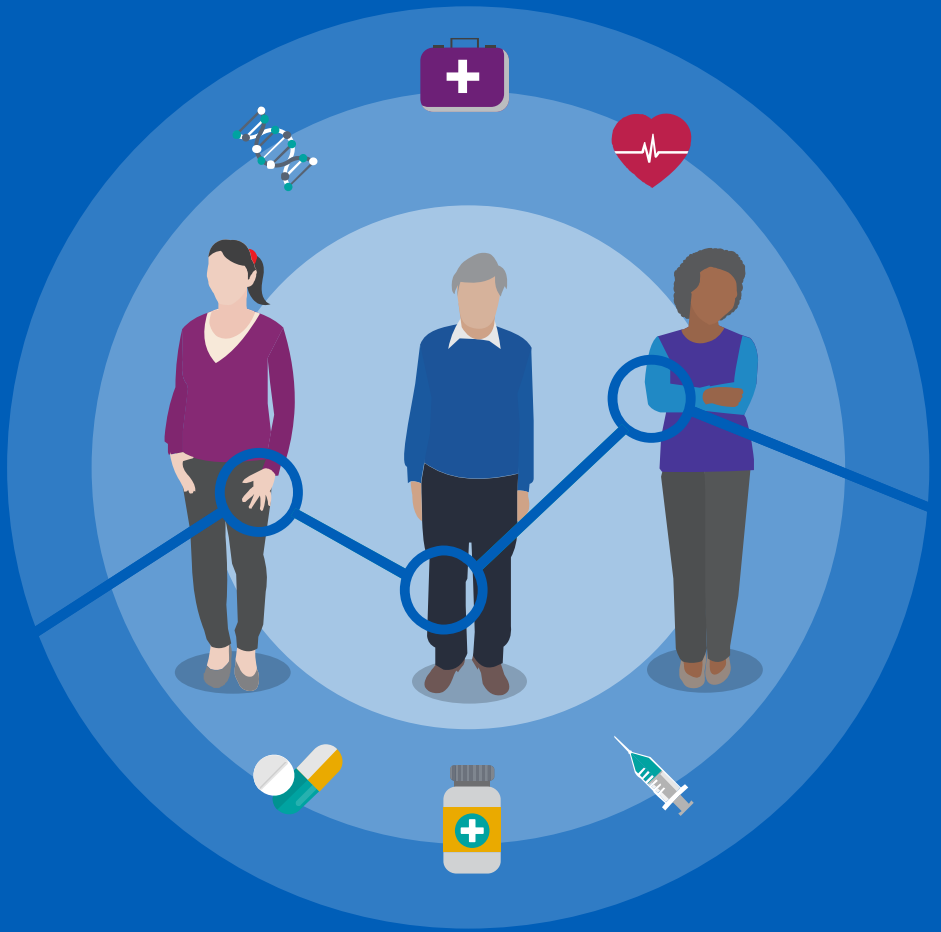

# Case studies


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# Use of software to facilitate clinical care

## Overview

— The team uses a software which aims to enable rheumatologists to clinically manage patients with rheumatic disease, and to track biologic and DMARD effectiveness via a point-and-click, color-coded anatomical diagram

— The software displays a weighted, trended analysis that includes clinically observed joint pain, swelling, sedimentation rate and physician visual analogue scale

## What is the rationale?

— Early diagnosis, prompt treatment initiation and early achievement of remission are major predictors of long-term clinical, functional and radiographic outcomes for RA. Controlling disease activity at an early stage offers sustained benefits and helps to prevent joint damage[(a)]

— The team uses a software application which aims to help the physicians at the clinic to identify patients earlier and to facilitate optimum clinical care

## What are the key features of the intervention?

— The software allows physicians to capture and view joint count trends at each patient visit while aggregating, analyzing, and presenting data in a concise and actionable format

— Collected data helps identify trends, predict outcomes, influence therapy choices, and improve care as the physician and patient work toward a low disease activity state

— Aggregated data within the portal can be applied to health management profiles and can help support future predictive analysis research

— The platform can enable rheumatologists in academic, private, and institutional settings to clinically follow patients with rheumatic disease, and to track biologic and DMARD effectiveness via a point-and-click, color-coded anatomical diagram

## What are the activities undertaken?

— Five screening questions are asked by the software and based on the results, a patient may get flagged on suspicion of an inflammatory condition and then be given priority for an appointment

— The software also concurrently collects and displays relevant patient co-morbidities and characteristics, and automatically identifies which patients meet the 1987 and 2010 RA diagnosis criteria[(b)(c)]

— Information is gathered from the center's Electronic Medical Record (EMR) and creates an active patient file. This allows the rheumatologist to know what the problematic joints are and what treatment the patient has been on

— The software flags when a particular case or any other item needs the rheumatologist's attention. For instance, when a patient has high disease activity and needs to be called for a follow-up appointment

— The program gives the rheumatologist a 'Thumbs-up' or 'Thumbs down' option to escalate, de-escalate or change the treatment for a patient

— If the patient's disease is controlled and there is no disease activity, the rheumatologist can withdraw some of / de-escalate treatment

References: (a) Monti S, Montecucco C, Bugatti S, et al. Rheumatoid arthritis treatment: the earlier the better to prevent joint damage. RMD Open. 2015 Aug 15;1(Suppl 1):e000057. doi: 10.1136/rmdopen-2015-000057. eCollection 2015; (b) About JointMan. T3 JointMan website. https://t3jointman.com/about-joint-man/ Accessed 9 October 2019; (c) Arnett FC, Edworthy SM, Bloch DA,et al. The American Rheumatism Association 1987 revised criteria for the classification of rheumatoid arthritis. Arthritis Rheum. 1988 Mar;31(3):315-24; (d) 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. 2010 Sep;62(9):2569-81. doi: 10.1002/art.27584

## What are the activities undertaken? (cont.)

- A feature of the software also screens applicable patients for research studies and alerts research staff if a patient may be a good candidate for one of the clinical studies
- Since the software is integrated with the clinic's Electronic Medical Record (EMR), all documentation is transferred back to the electronic health record system, where it interfaces agnostically to any system within the Western Washington Medical Group
- The software also automatically generates Merit-based Incentive Payment System (MIPS) reports which are then sent to the Centers for Medicare and Medicaid Services (CMS)[(a)]

## Benefits

### Benefits to patients:

- Helps patients which require urgent care get faster access to the clinic
- Accelerates identification of eligibility to participate in clinical research programs
- Enhances patient compliance to treatment as patients can visually see the results through friendly graphics in real time
- Strengthens the doctor-patient relationship

## Benefits (cont.)

### Benefits to HCPs:

- Flags cases which require immediate medical attention
- Gives real-time access to patient/physician-reported metrics (DAS, CDAI, Rapid 3, etc), thereby directing access to the right course of care
- Helps demonstrate the efficacy treatment
- Reduces administration burden and speeds up pre-authorization process through aggregating patient data for full process automation, providing pre-authorization templates and supplying support documentation for any appeals
- Allows HCPs to follow ACR Guidelines and pathways, which provides a foundation to support value-based contracts in Washington State

## Challenges

- Effectiveness of patient education depends on the patient's technical capability to understand the treatment

## What else could be done?

- The Arthritis Clinic may enable the software app to provide patients access to their health information (if the app meets the requisite technical specifications and security requirements)

References: (a) Merit-based Incentive Payment System (MIPS) How to Submit 2018 Data. Quality Payment Program. https://www.acr.org/-/media/ACR/Files/Quality-Programs/QPP/2018-MIPS-Data-Submission-Infographic.pdf?la=en Accessed 17 October 2019



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"The software allows me to show the patient in a simple and very visual way how their treatment is working or if there is a need to change it"

- Rheumatologist

# Education of HCPs and patients

## Overview

— The rheumatologists at the clinic focus on HCP education and conduct lectures across Washington state

— Rheumatologists at the Arthritis Clinic also focus on patient education and spend time with patients to explain RA and its treatment options

## What is the rationale?

— Education and counseling can help patients to better understand the nature of rheumatoid arthritis and cope with the challenges of the condition[a]

— Patients and providers can work together to formulate a long-term treatment plan, define reasonable expectations, and evaluate both standard and alternative treatment options[a]

## What are the key features of the intervention?

— The rheumatologists at the clinic provide education to HCPs, medical students and patients. They focus on promoting good practice to improve patient care

— HCP education is provided through lectures for PCPs and other provides in the Washington state. One of the rheumatologists at the Arthritis Clinic is the president of the Washington Rheumatology Alliance (WRA) and shares good practices with their peers in the state

— The rheumatologists also teach medical students at the University of Washington School of Medicine

— The rheumatologists at the Arthritis Clinic also focus on patient education and spend time with patients to explain RA and its treatment to them

## What are the activities undertaken?

### For HCPs

— The center works with the WRA to organize the annual conference for its members which includes several lectures on RA. Some topics covered are:

- Gender Differences in Rheumatologic Disease
- Regenerative Medicine and Rheumatoid Arthritis
- Rheumatology, Immunology, and Immuno-Oncology Intersect: Navigating the Complexities of Immune Checkpoint Inhibition, Autoimmunity, and Immune-Related Adverse Effects

— As a member of the WRA, the Arthritis Clinic is involved in the Rheumatology Care Alliance Learning Collaborative which allows WRA members to talk through current challenges and share best practices. Some activities included are:[b]

- Series of 6-monthly interactive educational webinars to share best practice, discuss difficulties faced with patient access/provision of care, and resolve issues of communication between HCPs, PCPs and other specialists
- Training on NCQA standards through an e-portal platform
- Access to tools to improve quality tracking
- Case study reports of best practices and challenges from 5 participating sites across the state

References: (a) Venables PJW. Patient education: Rheumatoid arthritis treatment (Beyond the Basics). UpToDate website. https://www.uptodate.com/contents/rheumatoid-arthritis-treatment-beyond-the-basics Accessed 11 October 2019; (b) Rheumatology Care Alliance Learning Collaborative. Washington Rheumatology Alliance website. https://warheumatology.org/initiatives/rheumatology-care-alliance-learning-collaborative/ Accessed 10 October 2019

## What are the activities undertaken? (cont.)

- The rheumatologists at the clinic also teach physiotherapists, osteopathy students and nursing students at the University of Washington School of Medicine
- The rheumatologists deliver lectures at the Northwest Rheumatism Society meetings

### For patients

- The rheumatologists spend 1 hour with newly diagnosed patients to educate them about RA
- During the first visit, the rheumatologist shares what a patient can expect with RA and talks about topics such as treatment options, stress reduction, good living, etc.
- The rheumatologists use interactive boards, models and diagrams to explain RA to the patients. The patients are also taught how to take injections

## Benefits

### Benefits to patients:

- Helps patients obtain a better understanding of the disease and the available treatment methods. They can also clarify their doubts about the disease with the rheumatologist
- Improves patient access to appropriate therapies and teaches them techniques for self-management which help in improving outcomes

### Benefits to HCPs:

- Helps HCPs learn good practices for RA treatment from experts and implement comparative quality improvement standards
- HCPs can set expectations with their patients and build physician-patient relationships
- Promotes ease of referral and faster referral times

## Challenges

- Delivering long and detailed consultations can be time consuming. It can be challenging to manage the time required for this intervention
- Effectiveness of patient education is dependent on the patient's technical capability to understand the treatment

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"I like to teach and I feel proud that I can make our patients feel better"

- Rheumatologist

# Holistic management of patients

## Overview

— The rheumatologists at the clinic aim to treat patients holistically and support multiple aspects of the patient's overall health

— Patients can have access to naturopathy treatments such as acupuncture to support RA treatment

## What is the rationale?

— Rheumatoid arthritis (RA) is a chronic, debilitating illness characterized by painful swelling of the joints, inflammation of the synovial lining of the joints, and damage to cartilage and bone[(a)]

— Natural products which have anti-arthritic qualities can be effective forms of therapy for RA[(a)]

## What are the key features of the intervention?

— The rheumatologists at the clinic aim to treat patients holistically and manage multiple aspects of the patient's overall health

— Patient education plays a crucial role in providing holistic care as the patients can make positive changes themselves. Rheumatologists provide advice and guidance to patients on several topics including occupational therapy, physical therapy and psycho-social support

— Patients with RA may be referred to naturopathic doctors to use non-western medicinal techniques

## What are the activities undertaken?

— During the 30-minute patient visit, the rheumatologist ask patients about their overall wellbeing and understand their personal issues

## What are the activities undertaken? (cont.)

— The clinic has links with naturopathic doctors who use herbs and acupuncture to help patients

- The patients are asked if they prefer non-Western treatment and can be referred for naturopathy (for example, turmeric is thought to have anti-inflammatory properties)

— If patients are referred by a naturopath, they are educated that herbal medicine alone may not be strong enough for treating RA effectively

— Patients with RA are required to include at least one form of Western medication within their treatment regime. Issues such as stress, poor diet, and injuries may hamper the immune system and certain drugs are necessary to treat them

— The rheumatologists aim to provide holistic advice to patients. For example, for patients who want to exercise but might be unable to due to a busy job, the rheumatologist gives advice on how to manage their day or to change their jobs, etc.

## Benefits

— Managing multiple aspects of the patient's health helps in identifying and managing comorbidities

— Patients receive advice and support from the rheumatologists to improve self-management

References: (a) Dudics S, Langan D, Meka RR. et al. Natural Products for the Treatment of Autoi mune Arthritis: Their Mechanisms of Action, Targeted Delivery, and Interplay with the Host Microbiome. Int J Mol Sci. 2018 Sep; 19(9): 2508.. Published online 2018 Aug 24. doi: 10.3390/ijms19092508

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