

Triage of Rheumatology Referrals Facilitates Wait Time Benchmarks

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ABSTRACT. Objective. In 2014 the Canadian Rheumatology Association published wait time benchmarks for inflammatory arthritis (IA) and connective tissue disease (CTD) to improve patient outcomes. This study's aim was to determine whether centralized triage and the introduction of quality improvement initiatives would facilitate achievement of wait time benchmarks.

Methods. Referrals from September to November 2012 were retrospectively triaged by an advanced practice physiotherapist (APP) and compared to referrals triaged by an APP from January to March 2014. Each referral was assigned a priority ranking and categorized into one of 2 groups: suspected IA/CTD, or suspected non-IA/CTD. Time to initial consult and time to notification from receipt of referral were assessed.

Results. A total of 558 (n = 227 and n = 331 from 2012 and 2014, respectively) referrals were evaluated with 35 exclusions. In 2012, there were 96 (42.5%) suspected IA/CTD and 124 (54.9%) suspected non-IA/CTD patients at the time of the initial consult. Mean wait times in 2012 for patients suspected to have IA was 33.8 days, 95% CI 27.8–39.8, compared to 37.3 days, 95% CI 32.9–41.7 in suspected non-IA patients. In 2014, there were 131 patients (43%) with suspected IA based on information in the referral letter. Mean wait times in 2014 for patients suspected to have IA was 15.5 days, 95% CI 13.85–17.15, compared to 52.2 days, 95% CI 46.3–58.1 for suspected non-IA patients. Time to notification of appointment improved from 17 days to 4.37 days.

Conclusion. Centralized triage of rheumatology referrals and quality improvement initiatives are effective in improving wait times for priority patients as determined by paper referral. (J Rheumatol First Release September 1 2016; doi:10.3899/jrheum.151235)

Key Indexing Terms:

TRIAGE RHEUMATOLOGY QUALITY IMPROVEMENT ARTHRITIS

There are currently more than 4.6 million Canadians living with arthritis¹. Rheumatoid arthritis (RA) is the most prevalent inflammatory arthritis (IA) with over 272,000 Canadians affected. Delays in treatment for RA are associated with decreased quality of life, increased health expenditures, and loss of work productivity¹. The current incidence of RA is 0.9%, with an expected increase to 1.3% in the next 30 years. Despite this high incidence, the number of health practitioners in the field is inadequate, with only 371 physicians, or 1.1 per 100,000 population, trained to manage rheumatologic disease in Canada^{2,3,4}. Therefore, some Canadian centers have reported unacceptably long wait times, i.e., over 13 months from time of referral to initial consultation with a rheumatologist⁴. Recent literature supports early

diagnosis and initiation of treatment of inflammatory disease to prevent joint deformity and resultant disability^{1,5}. In response, the Canadian Rheumatology Association published *Wait Time Benchmarks for Rheumatology* in 2014⁶. The wait time benchmarks outlined (Table 1) provide useful clinical guidelines for early assessment and management of disease in suspected cases of IA and connective tissue disease (CTD). For example, suspected cases of RA should be seen within 4 weeks of receipt of referral to the rheumatologist's office. Given the prevalence of rheumatologic disease, the limited number of rheumatologists in Canada, and the call to improve wait times for initial assessment and treatment of disease, a variety of solutions have been proposed to meet the needs of Canadians. These include maximization of healthcare staff, improving practice efficiencies, improving quality of referral letters, and centralized triage systems^{3,7}.

Several quality improvement initiatives have been demonstrated to reduce wait times in rheumatology outpatient clinics, including lengthening followup intervals, hiring more rheumatologists, increasing the use of a nurse practitioner, and redesigning scheduling templates⁸. Use of these combined measures led to a reduction in the time period for third available appointment from 60 days to 2 days, and decreased cancellations by over 20%⁸. Scheduling templates has improved wait times across other specialty outpatient

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Table 1. CRA wait time benchmarks⁶.

Condition	Max Wait Time for Patient with Suspected Diagnosis	Wait Time to Start DMARD Following Confirmed Diagnosis	Ideal Wait Time to MRI
RA	4 weeks	2 weeks	—
SpA	3 months	—	6 weeks
PsA	6 weeks	—	—
SLE	1 month	—	—
JIA — systemic onset	7 days	—	—
JIA	4 weeks	—	—
JIA uveitis screening	4 weeks	—	—

CRA: Canadian Rheumatology Association; DMARD: disease-modifying antirheumatic drug; MRI: magnetic resonance imaging; RA: rheumatoid arthritis; SpA: spondyloarthritis; PsA: psoriatic arthritis; SLE: systemic lupus erythematosus; JIA: juvenile idiopathic arthritis.

clinics. Organizing appointments based on type of appointment (for example, followup vs new patients vs procedural), estimated length of appointment, and availability of clinic resources, can improve patient wait times, clinic flow, and resource use⁹.

We aim to determine whether centralized triage and the introduction of several quality improvement initiatives would facilitate achievement of wait time benchmarks for inflammatory arthritis. Quality initiatives included priority assignment of referrals, booking templates, and monthly audits as indicators against benchmarks.

MATERIALS AND METHODS

The study took place in the Rheumatology Department at Women's College Hospital, a large, urban, academic ambulatory care hospital in Toronto, Ontario, Canada. This study received ethics approval from the Women's College Hospital Research Ethics Board, #2014-0071-E. An initial pilot of 221 referral letters were triaged by the advanced practice physiotherapist (APP) and compared to 1 senior rheumatologist comparing the concordance of identifying IA/CTD and non-IA/CTD by paper triage. Concordance was very good, with Cohen's κ of 0.927 and 95% CI (0.878–0.977).

A comparison of wait times for new consultations for suspected IA and CTD was made between September 1, 2012, and November 30, 2012, and January 1, 2014, to March 31, 2014, by a retrospective chart extraction. In 2014, a standardized database was used to track all incoming referrals. In 2012, there was no standardized tracking of referrals and therefore the number of new consultations actually done was used as a proxy for the number of referrals received in a 3-month period. These 3-month intervals for 2012 and 2014 were chosen because the number of rheumatologists was equal at both timepoints. There was an additional staff member (an APP) available for new consultations encompassing both suspected and non-suspected IA/CTD. The APP ran a parallel clinic with the rheumatologist, but all consultations were reviewed with the rheumatologist. Exclusion criteria included urgent referrals because they commonly bypass the central triage process [2/227 (0.88) in 2012 and 8/331 (2.42%) in 2014], duplicate referrals [2/331 (0.60%) in 2014], cancelled referrals [12/331 (3.63%) in 2014], and those with incomplete information [5/227 (2.20%) in 2012 and 5/331 (1.51%) in 2014].

In 2012, a nonstandardized process was used to direct the scheduling of initial consultations, whereas in 2014, all incoming referrals were triaged by the APP using a standardized priority algorithm (Table 2)¹⁰. The 2014 incoming referrals were tracked in a database that contained the assigned

Table 2. Women's College rheumatology triage algorithm for new referrals¹⁰.

Priority Level	Wait Time Benchmarks	Condition
Urgent	24–48 h	Giant cell arteritis Acute systemic vasculitis Septic joint Acute connective tissue disease with major organ involvement Significant unexplained constitutional symptoms related to connective tissue disease Acute gout for joint aspiration
Priority 1	31 calendar days	SLE CTD PMR RA SpA PsA
Priority 2	90 calendar days	Nonarticular rheumatism (e.g., bursitis, tendonitis) Osteoarthritis Crystal arthropathy
Priority 3	240 calendar days	Fibromyalgia/chronic pain

PMR: polymyalgia rheumatica; RA: rheumatoid arthritis; SpA: spondyloarthritis; PsA: psoriatic arthritis; SLE: systemic lupus erythematosus; CTD: connective tissue disease.

priority rankings. To compare 2012 and 2014, the standardized priority ranking algorithm used in 2014 was applied to the September 1, 2012, to November 30, 2012, referrals for the new consultations, seen in clinic by the APP, to identify suspected IA/CTD for our review. The APP was blinded to the previous priority rankings and to the chart. The priority ranking for January 1, 2014, to March 31, 2014, referrals triaged by the APP was extracted from the database.

For all referrals, the date of receipt of referral of initial consultations and time to notification were obtained. The wait time was calculated from the date of receipt of referral to the date of clinic appointment initially given. Time to notification was calculated from date of receipt to date of mailout/phone call performed.

The wait times were categorized by priority ranking. The goal of the study was to evaluate the wait times of referrals with suspected IA/CTD. Therefore, Priority 1 patients were classified as suspected IA/CTD and Priority 2 and 3 referrals were grouped as suspected non-IA. The wait times from 2012 and 2014 were then compared. Univariate analysis was determined for mean wait time with a 95% CI.

RESULTS

There were 220 new consultations seen in clinic during the 2012 period compared to 294 incoming paper referrals received in the 2014 period. Time to notification of appointment improved from 17 days in 2012 to 4.37 days in 2014. In 2012 the mean wait time for patients with suspected IA/CTD ($n = 96$) was 33.79 days (95% CI 27.84–39.74) compared to the 2014 ($n = 131$) mean wait time of 15.5 days (95% CI 13.85–17.15; Figure 1). In 2012 ($n = 124$), the mean wait time for suspected non-IA/CTD was 37.28 days (95%

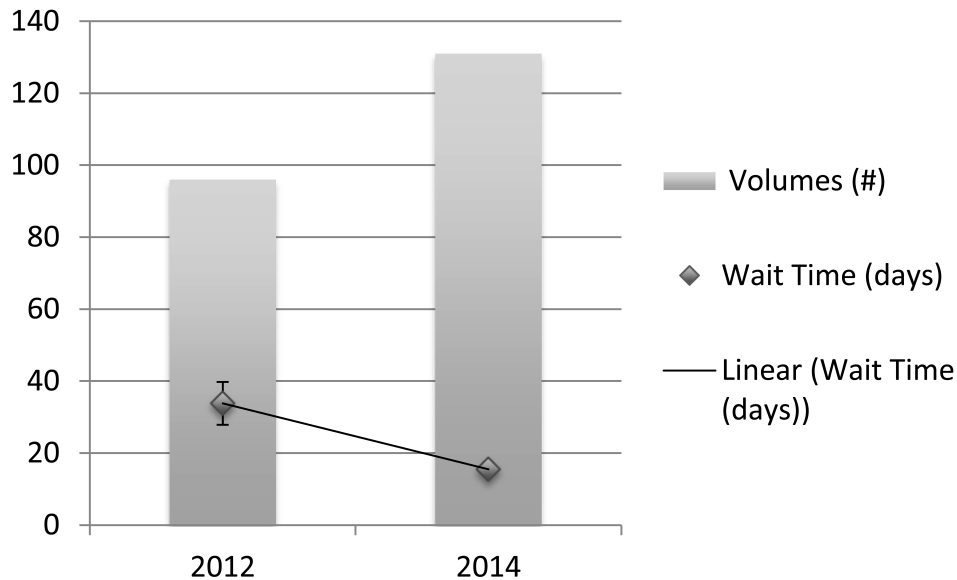


Figure 1. Wait times (in days) and volumes for suspected cases of inflammatory arthritis or connective tissue disease.

CI 32.88–41.68) compared to the 2014 (n = 163) mean wait time of 52.22 days (95% CI 46.27–58.17; Figure 2).

DISCUSSION

In 2012, all incoming referrals were screened by several rheumatologists to determine possible diagnoses and need for urgent assessment. A nonstandardized process was used to direct booking of the initial consultation. Because the wait times for patients suspected to have IA/CTD and those not

suspected to have IA/CTD were similar (33.8 and 37.3 days, respectively), the booking practice at the time represented a system consistent with first available appointment, regardless of priority ranking. In 2014, there was a decrease in suspected IA/CTD wait time to 15.5 days, with an increase in suspected non-IA/CTD wait time, which suggests the triage process accounts for the observed change in wait times. Other factors that could reduce wait time include increased clinician staffing or decreased volumes.

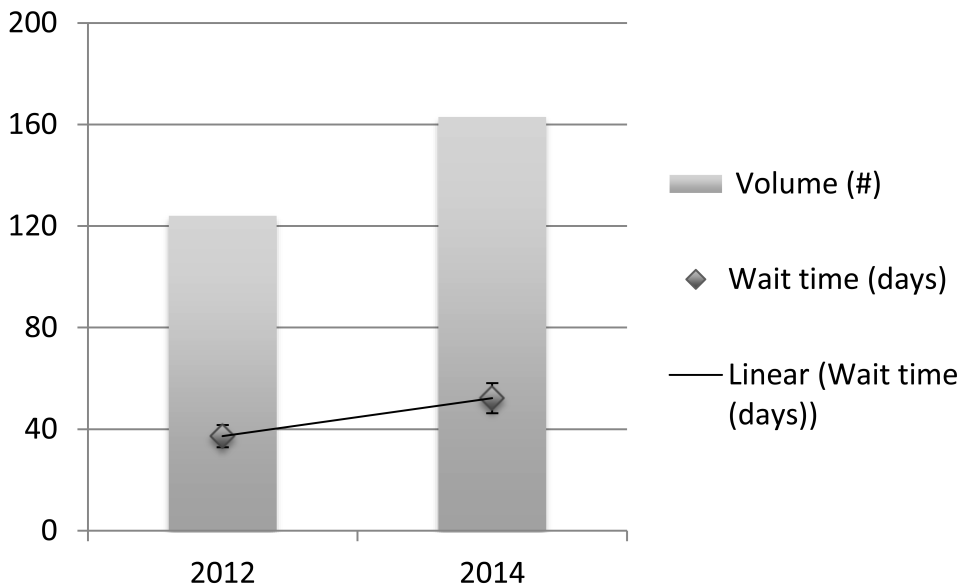


Figure 2. Wait times (in days) and volumes for cases not suspected of being inflammatory arthritis or connective tissue disease.

It would be expected that increased clinical staffing and/or decreased referral volumes would lower the wait times for both suspected IA/CTD and suspected non-IA/CTD referrals, but this was not observed in our study. The volume of new consultations actually seen in clinic increased in 2014 compared to 2012, by 96. The number of followup visits also increased from September 1, 2012, to November 30, 2012, and January 1, 2014, to March 31, 2014. The decrease in wait times can therefore not be attributed to decreased clinic volumes.

During the 2014 study period, concomitant quality improvement measures were added, including monthly audits, booking templates, and time to notification. A monthly audit was performed to evaluate the number of new consultations, stratified by priority ranking, against the benchmarks for the wait times for each priority ranking. The booking template outlines the type of appointment (new consultation vs followup) and stratifies based on priority ranking. The monthly audit was used to identify the suspected IA/CTD referrals not seen on target. Based on information from the monthly audit, the booking templates for each clinician were modified to accommodate the volume of referrals received. Our study showed an improvement in notification time, which would indicate improved booking practices. Because the quality improvement measures were applied simultaneously, we were not able to identify the individual effect of each initiative, but the overall net effect was improved access for patients suspected to have IA/CTD. Although the individual effect of these measures could not be assessed in our study, the introduction of centralized triage in northwest Wales showed a doubling of referrals and decreased wait times in musculoskeletal care¹¹. Additionally, diagnostic triage by general practitioners or registered nurses improved referral capacity in an early arthritis clinic in Ireland¹². Optimization of practice efficiency and centralized triage have improved wait times in arthritis care, thereby improving access^{11,12}.

There were limitations in our current study. It was a retrospective chart review whereby multiple interventions were simultaneously applied in April 2013 and later evaluated after implementation in the January 31, 2014, to March 30, 2014, study period. This limited the ability to identify the 1 particular intervention that had the strongest effect. In addition, our study compared the September 1, 2012, to November 30, 2012, consultations actually assessed in clinic to the January 1 to March 30, 2014, referrals received. Not all referrals received translate into actual clinic visits. Finally, our study did not investigate the validity of the triage process in identifying patients with confirmed IA/CTD. This is an important aspect of triage of patients with IA. A followup

study is currently under way to investigate the ability of the triage processes to identify IA.

The addition of centralized triage and quality improvement measures including booking templates, monthly audits, and the implementation of wait time benchmarks led to significant reductions of wait times for patients suspected of having IA or CTD. Future research is needed to assess the individual effect of each of the strategies.

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Correction

Triage of Rheumatology Referrals Facilitates Wait Time Benchmarks

Farrer C, Abraham L, Jerome D, Hochman J, Gakhal N. Triage of rheumatology referrals facilitates wait time benchmarks. *J Rheumatol* 2016;43:2064-7. The term *incidence* was incorrectly used in the first paragraph. *Prevalence* is the correct terminology. The corrected sentences read as follows: “The current prevalence of RA is 0.9%, with an expected increase to 1.3% in the next 30 years. Despite this high prevalence, the number of health practitioners in the field is inadequate, with only 371 physicians, or 1.1 per 100,000 population, trained to manage rheumatologic disease in Canada^{2,3,4}.”

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