The Early Arthritis Screening and Treatment (EAST) Program for Eastern Quebec Improves Inflammatory Arthritis Care.

Paul R Fortin, MD, MPH, FRCPC[1]; Alexandra Godbout[1]; Suzanne Côté, RN[1]; Johanne Tardif, PT, MSc[1]; Catherine Dion, PT[1]; Jean Légaré, DHC[2];
Louis Bessette, MD, MSc, FRCPC[1]; Alexandra Albert, MD, FRCPC[1]; Renée Brousseau B.Sc.N.[1]

1- CHU de Québec – Université Laval. 2- Comité Aviseur Patient de rhumatologie, CHU de Québec – Université Laval.

ABSTRACT

Objectives. The objective of the EAST program was to improve the trajectory of care for patients with inflammatory arthritis (IA) in Eastern Quebec. Specific aims were to: 1) train a team of allied health professionals to perform a focused joint examination and be proficient in the care of IA; 2) document key quality indicators of performance; and 3) educate stakeholders about the importance of early and accurate diagnosis of IA.

Methods. The EAST clinical team was created with support from the CHU de Québec that allowed dedicated time from one nurse and two physiotherapists. Descriptive statistics of the number of new referrals and follow-up visits were generated for the period before and after starting the EAST program and the following key performance indicators were measured: a) time from referral to first visit and proportion achieving recommended guidelines of 4 weeks and b) time from referral to first DMARD.

Results. At baseline, 441 new referrals for AI were late in scheduling their first visit. The number of patients seen monthly at the CHU de Québec increased over the 18 months of the study. The wait times for two key indicators of performance have decreased for the time from referral to time to starting methotrexate at 125 days down from 154 days. There was an increase in the number of patients seen by a rheumatologist within 4 weeks from referral (39% vs 57%) and who started a DMARD within 12 weeks from their referral (wait time [mean (sd)] went down from 155 (277) to 125 (139) days). Eighteen months after the first triage clinic, the effects were sustained. As expected, the number of follow-up visits increased and specific solutions to manage this extra care load are in development.

Conclusion. The care pressure for patients with IA at the CHU de Québec exceeded the capacity for specialized care to meet this need and new models of care were needed. This CIORA pilot project has allowed rheumatology to become a priority within our hospital. Documentation of the lengthy delays and the enormous referral pressure has led to a LEAN exercise for the intra-hospital trajectory of rheumatology care and to a kaizen workshop. Once the care for rheumatology patients at the CHU de Québec is optimized, we have plans to work with community resources and with primary care teams to promote the development of an integrated trajectory of care for patients with inflammatory arthritis.

INTRODUCTION

Rheumatoid arthritis (RA) in Canada in 2010 (www.arthritisalliance.ca)

- 272,000 individuals affected with 18,000 new cases annually
- 50% younger than age 60
- Cumulative economic burden of $5,7B (2010) and predicted of $76B by 2020

RA is incurable but very early detection and treatment prevents disability and complications

- Recommendation of less than 12 weeks between time from onset of inflammatory arthritis (IA) symptoms and treatment with a DMARD (MTX)
- This recommendation cannot be met in northeastern Quebec at this time since 1,8M persons are cared for by 19 rheumatologists (2012) with 15 affiliated to a University Hospital in Quebec City or Lévis

The overarching goal of the EAST program is to increase the number of new cases of inflammatory arthritis patients seen early by a rheumatologist as well as decrease the time to consultation and initiation of adequate arthritis treatments in northeastern Quebec. From an operational perspective, we proposed to 1) train a multidisciplinary team of allied health professionals to perform a focused joint examination and be proficient in the care of IA; 2) document key quality indicators of performance; and 3) educate stakeholders about the importance of early and accurate diagnosis of IA.

SPECIFIC OBJECTIVES

Primary objectives are:

1) To demonstrate that EAST increases the number of persons with IA seen monthly in the year following its implementation when compared to the year before;
2) To demonstrate at one year a decrease of our two key indicators of performance: a) time from referral to first visit and b) time from referral to first DMARD;
3) To demonstrate a greater proportion of patients meeting Arthritis Alliance of Canada (AAC) guidelines monthly over the first year.

Secondary objectives are:

1) To demonstrate that the effect of the EAST program is sustained at 18 months;
2) To document the impact EAST has on priority groups 2 and 3 in terms of wait times and re-directions;
3) To document the impact of EAST on follow-up visits;
4) To advocate for earlier identification of arthritis patients and treatments by working with the primary care network grouped in Quebec under the network of family medicine units.

METHODS

Population : 2432 patients over a period of 18 months.

Definitions and variables

Three priorities :

- P1 (<= 90 days) if P1-2012 or P1-2013 or P2-2013 or P3-2013 or EAST
- P2 (> 90 days) if P2-2012 or P3-2012 or P4-2013
- P3 (transfert) if P(transfert)

Two periods and three groups

Periods :

- Pre-EAST if new patient seen between January 2013 and August 2013
- EAST if new patient seen between September 2013 and June 2014 whether or not they were in the EAST program

Groups :

- Pre- EAST if new patient seen between January 2013 and August 2013
- EAST if new patient seen between Septembre 2013 and June 2014, but not an EAST multidisciplinary team program patient
- EAST-Multi if new patient seen between September 2013 and June 2014 seen by the newly created multidisciplinary team as part of the EAST program

Delays :

- Delay 1 : between date of consultation request received and date of consultation (days)
- Delay 2 : between date of onset of symptoms and date of treatment with methotrexate (days)
- Delay 3 : between date of consultation request and date of treatment with methotrexate (days)
- Delay 4 : between date of consultation and date of treatment with methotrexate

Success :

- Succes 1: time to consultation – 30 days : if delay 1 is equal or less than 30 days.
- Succes 2: time to consultation – 90 days : if delay 1 is equal or less than 90 days
- Succes 3: time symptoms to MTX – 90 days : if delay 2 is equal or less than 90 days
- Succes 4: time consultation request to MTX – 90 days : if delay 3 is equal or less than 90 days
- Succes 5: time consultation to MTX – 90 days : if delay 4 is equal or less than 90 days

Number of patients seen during the period of the study can be described by the following variables :

- Number of half-days : monthly sum of the number of half-days available to see a rheumatologist
- Number of patients : monthly sum of the number of patients seen in consultation
- **Adjusted number of patients:** Number of patients * 190/number of half-days. This is done so that the number of patients seen per month is adjusted for the number of available half-days to see a rheumatologist opened during that month. As the highest number of half-days was observed in January 2013 (190 half-days), all other months were adjusted for this number. This means that the number of patients seen during a month with a lower number of half-days, the efficacy (higher number of adjusted patients seen) will likely be better than for months with more half-days opened.

Statistical analyses

- **Number of clinical half-days per period**
  Descriptive statistics (n, mean (sd), minimum, median and maximum) of the number of rheumatologists half-days available in the period.
- **Number of patients per group and per period**
  Frequency tables were generated to show the number of patients seen in consultation by group and by period.

PRIMARY OBJECTIVES

- **Primary objective 1: Number of patients seen monthly per group/period (Figures 1 and 2).** Descriptive statistics (n, mean (sd), minimum, median and maximum) of the number of patients and adjusted number of patients seen monthly.
- **Primary objective 2: Delays by group/period (excludes follow-ups).** Descriptive statistics (n, mean (sd), minimum, median and maximum) of the four delay variables by groups and final diagnosis. **Table 1** presents descriptive statistics for all groups for delay 1 and only for those with a final diagnosis of RA for delays 2-4 (MTX).
- **Primary objective 3: Proportion of successes per group (excludes follow-ups). Table 2** presents frequency tables for each of the five success variables divided by group. For successes 3-5 with MTX, results are limited to those with a final diagnosis of RA only.

SECONDARY OBJECTIVES

- **Secondary objective 2: Delays by group and priority (excludes follow-ups).** Descriptive statistics (n, mean (sd), minimum, median and maximum) for the four delay variables by group and priority as defined above. For delay 1, we then described this delay by group, final diagnosis and priority **(Table 3)**.
- **Secondary objective 3: Delays per period for follow-ups.** Descriptive statistics (n, mean (sd), minimum, median and maximum) for delay 1 **(Table 4)**. Frequency tables were generated that describes frequency and proportions of the success variables are presented. **Figure 2** reports the total number of follow-up visits during the study period. **Figure 3** provides an example of the waiting list pressures by priority for a typical month (May 2014).

RESULTS

(Tables and figures were produced in French and will be presented in this language in this poster)

Figure 1: Number of first and follow-up visits between January 2013 and June 2014.

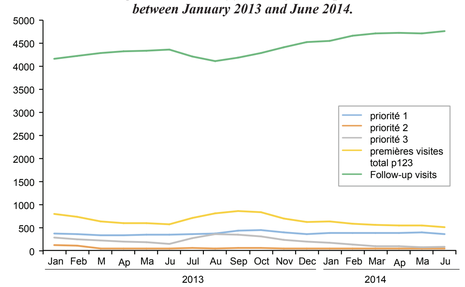


Figure 2: Number of patients seen monthly per group/period

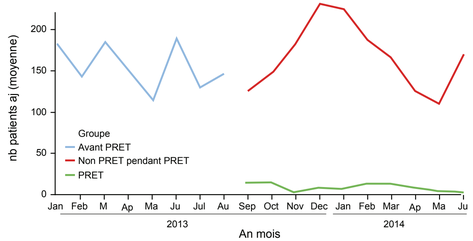


Table 4: Delays per period for follow-ups.

		periode	
		Avant PRET	Pendant PRET
Délai Consultation - Demande	N	289	628
	Mean	227.35	107.46
	StdDev	106.94	101.31
	Min	1.00	0.00
	Median	215.00	92.00
	Max	579.00	450.00

Table 1: Delays by group/period

		groupe		
		Avant PRET	Non PRET pendant PRET	PRET
Délai Consultation - Demande	N	748	692	75
	Mean	211.39	83.51	85.48
	StdDev	314.87	166.10	99.14
	Min	0.00	0.00	10.00
	Median	56.00	22.00	51.00
	Max	1476.00	1369.00	465.00
Délai Méthotrexate - Symptômes	N	67	20	30
	Mean	586.96	348.35	424.87
	StdDev	1100.54	695.49	456.16
	Min	51.00	19.00	59.00
	Median	238.00	162.50	246.00
	Max	7417.00	3224.00	2056.00
Délai Méthotrexate - Demande	N	73	23	30
	Mean	154.51	137.96	144.87
	StdDev	250.58	253.68	144.70
	Min	0.00	2.00	0.00
	Median	70.00	78.00	78.00
	Max	1589.00	1240.00	507.00
Délai Méthotrexate - Consultation	N	73	23	30
	Mean	45.30	14.26	52.77
	StdDev	78.64	46.65	78.12
	Min	0.00	0.00	0.00
	Median	7.00	0.00	0.00
	Max	391.00	224.00	259.00

Table 2: Proportion of successes in EAST performance indicators by period.

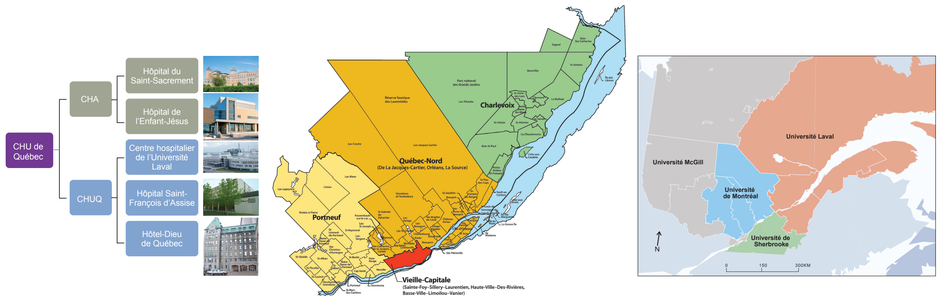
	Pre-EAST	EAST	EAST-Multi
All patients (n=1515)	**748**	**692**	**75**
• Success 1 (30 days) (%)	38.9	56.5	26.7
• Success 2 (90 days) (%)	57.8	76.5	74.7
Patient with final diagnosis of RA only (n=117)	**67**	**20**	**30**
• Success 3 (symptoms to MTX) (90 days) (%)	10.5	25.0	3.4
• Success 4 (consult request to MTX) (90 days) (%)	58.9	56.5	56.7
• Success 5 (consult date to MTX) (90 days) (%)	82.2	95.7	76.7

Figure 3: Waiting list as of May 2014: Number of patients exceeding target times from consultation request to first visit.

Table 3: Delays by group and EAST priority.

		priorite_EAST											
		Moins de 3 mois						Plus de 3 mois					
		N[1]	Moyenne	Écart-type	Min	Médiane	Max	N	v	Écart-type	Min	Médiane	Max
Temps entre la demande de consultation et la consultation	groupe												
	Avant EAST[1]	493	55.27	104.63	0.00	20.00	952.00	255	513.24	362.77	10.00	417.00	1476.00
	Non EAST pendant EAST[2]	625	49.01	82.64	0.00	16.00	673.00	67	405.33	328.41	17.00	291.00	1369.00
	EAST[3]	75	85.48	99.14	10.00	51.00	465.00	.	.	.	.	.	.
Temps entre le début des symptômes et le début du méthotrexate	groupe												
	Avant EAST[1]	62	426.74	580.38	51.00	215.00	3687.00	5	2573.60	3084.91	372.00	797.00	7417.00
	Non EAST pendant EAST[2]	20	348.35	695.49	19.00	162.50	3224.00	0	.	.	.	.	.
	EAST[3]	30	424.87	456.16	59.00	246.00	2056.00	.	.	.	.	.	.
Temps entre la réception de la demande de consultation et le début du méthotrexate	groupe												
	Avant EAST[1]	68	104.21	109.03	0.00	65.00	456.00	5	838.60	550.52	296.00	822.00	1589.00
	Non EAST pendant EAST[2]	22	87.86	83.39	2.00	61.50	310.00	1	1240.00	.	1240.00	1240.00	1240.00
	EAST[3]	30	144.87	144.70	0.00	78.00	507.00	.	.	.	.	.	.
Temps entre la consultation et le début du méthotrexate	groupe												
	Avant EAST[1]	68	41.81	75.88	0.00	6.50	391.00	5	92.80	108.92	0.00	48.00	237.00
	Non EAST pendant EAST[2]	22	14.27	47.75	0.00	0.00	224.00	1	14.00	.	14.00	14.00	14.00
	EAST[3]	30	52.77	78.12	0.00	0.00	259.00	.	.	.	.	.	.

Figure 4: Hospitals of the CHU de Québec – Université Laval and maps of the CIUSSS – Capitale Nationale and of the RUIS – Université Laval.



DISCUSSION

- This project allowed us to document the nature and magnitude of the problem with arthritis care in our hospital and in our administrative region.
- Armed with this information, we were able to start the first step toward the improvement of the arthritis care trajectory in our division of rheumatology at the CHU de Québec – Université Laval.
- The EAST program has been a steppingstone towards a new Model of Care in rheumatology in our region. This Model of Care is still in development and this demonstrates the uptake from our institution that is a direct consequence of this CIORA initial research project **(Figure 4)**.

LIMITATIONS

- An Electronic Medical Record was not yet implanted at the CHU de Québec – Université Laval at the time of the project. Moreover, no database allowing the physicians (or hospital personnel) to record the quality indicators of performance in real-time existed, leaving us to review hundreds of hard copies of patients' hospital charts to find the information retrospectively.
- The measure of improvement in number of patients seen and our two performance indicators (time to rheumatology consultation and time to DMARD) are dependent of the baseline numbers – a comparison that must be based on historical data collected from the paper-based referral forms that are kept at CHU de Québec
- Wait times are moving targets that depend on internal processes of the service but also on external factors that could affect our performance indicators
  - During the study period, one rheumatologist retired, one left the service to practice in another region, one had a maternity leave and one had an injury that kept her away for two months!
- The EAST program with its focus on new referrals for EA may impact negatively on the new referrals for other rheumatic diagnoses or on follow-up visits and we are monitoring this.

CONCLUSIONS

- The EA patients for whom complete data were obtained demonstrated that the wait times for our two key indicators of performance: a) time from referral to first visit and b) time from referral to first DMARD have decreased even though they emain unacceptable on average for the time from referral to time to starting methotrexate at 125 days in the EAST program down from 154 days before.
- The data also demonstrate an increase in the number of patients meeting the AAC guidelines which suggest that a patient should be seen by a rheumatologist within 4 weeks from referral and should start a DMARD within 12 weeks from the first symptoms.

ACKNOWLEDGEMENTS

CHU de Québec Université Laval
UNIVERSITÉ LAVAL
CIORA ICORA
CANADIAN INITIATIVE FOR OUTCOMES IN RHEUMATOLOGY CARE | INITIATIVE CANADIENNE POUR DES RÉSULTATS EN SOINS RHUMATOLOGIQUES