Assessing System-Level Performance Measures for Early Rheumatoid Arthritis in the Canadian Early Arthritis Cohort Study (CATCH): an 8-Year Observational Cohort Study

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Background

- The Arthritis Alliance of Canada (AAC)[1] developed 6 system-level performance measures for inflammatory arthritis (IA).
- The measures capture timely access to rheumatology care and treatment.
- This project is part of a national study to test the feasibility of reporting on the measures in different data sources in 5 Canadian provinces.

Objectives

- To assess 3 of these measures in a large longitudinal Canadian early IA cohort.

Methods

Inclusion criteria:

- ➢ Early RA (ERA) patients enrolled between January 2007-February 2015 in CATCH (Canadian Early Arthritis Cohort)
- ➢ Met 1987 or 2010 ACR/EULAR Criteria
- ➢ <1 year of symptom duration & > 1 year of follow-up
- ➢ Study time: Duration from enrollment date to either study withdrawal or last date of observation up until May 9, 2016

Performance Measures computed annually including:

- ➢ % ERA patients seen in yearly follow-up (fixed 12 and 14 month windows from baseline). Number of gaps in care >12 and 14 months between visits over follow-up calculated
- ➢ % ERA patients treated with non-biologic or biologic DMARD
- ➢ Time to DMARD start and % treated within the 2-week benchmark[2]

Funding

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Results

Table 1. Baseline characteristics

Baseline Characteristics	Total Sample (n=1763)
Age years, Mean (SD)	54 (15)
Female, Frequency (%)	1283 (73%)
Mean (SD) disease duration, months	5.7 (3.0)
% meeting ACR/EULAR 2010 classification criteria	1575 (89%)
% meeting 1987 ACR classification criteria	1235 (71%)
DAS28-ESR (SD)	5.1 (1.5)

ACR: American College of Rheumatology, DAS28-ESR: Disease Activity Score28- erythrocyte sedimentation rate; EULAR: European League against Rheumatism; SD: standard deviation

Table 2. Percentage seen in yearly follow-up

	Calendar year							
	2008	2009	2010	2011	2012	2013	2014	2015
Numerator	91	338	581	756	933	1023	1060	1056
Denominator	91	347	610	822	999	1132	1202	1207
Proportion (%)	100%	97%	95%	92%	93%	90%	88%	88%
Number and Percent of Patients seen in Yearly FU Stratified by Enrollment Year								
2007	100%	94%	86%	80%	83%	87%	79%	93%
2008		99%	93%	86%	89%	84%	85%	84%
2009			99%	94%	91%	87%	91%	87%
2010				98%	96%	88%	84%	86%
2011					99%	95%	77%	78%
2012						99%	95%	85%
2013							100%	95%
2014								97%

Table 4. Percentage of patients treated with a conventional or biologic DMARD

	Calendar year								
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Numerator	86	342	614	842	1015	1143	1240	1250	1032
Denominator	91	353	635	879	1058	1208	1311	1341	1200
Proportion (%)	95%	97%	97%	96%	96%	95%	95%	93%	86%
Number and percent of patients treated with a DMARD (or biologic DMARD) stratified by year of enrolment									
2007	95%	99%	94%	93%	89%	90%	96%	94%	88%
2008		96%	98%	96%	95%	90%	91%	92%	78%
2009			96%	97%	95%	92%	91%	91%	84%
2010				95%	98%	98%	93%	94%	88%
2011					97%	98%	93%	88%	79%
2012						95%	99%	93%	81%
2013							99%	99%	93%
2014								98%	97%

Table 3. Gaps in care >12 M & >14 months

Total Sample n (%)	Number of gaps >12 months				Number of gaps > 14 months			
	0	1	2	3+	0	1	2	3+
	747 (42%)	479 (27%)	356 (20%)	181 (10%)	1136 (64%)	485 (28%)	123 (7%)	19 (1%)
Follow-up in years (number of patients) and % with gaps stratified by year								
1 (172)	96%	4%	0	0	99%	1%	0	0
2 (268)	90%	9%	1%	0	93%	7%	<1%	0
3 (270)	69%	30%	2%	0	86%	13%	1%	0
4 (243)	37%	50%	11%	2%	67%	31%	3%	0
5 (242)	16%	46%	32%	16%	51%	43%	5%	<1%
6 (242)	7%	34%	46%	13%	38%	45%	15%	3%
7 (175)	3%	21%	44%	31%	32%	47%	19%	2%
8 (118)	3%	14%	42%	40%	34%	40%	19%	8%
9 (33)	0	3%	12%	85%	36%	33%	30%	0

Colours refer to most common pattern of care: green no gaps, yellow 1 gap, red 2 or more gaps

Table 4. Time to DMARD therapy

Year	Sample size	Time to DMARD[1]			% treated within 14 days of diagnosis	
	Rx ≧ Dx	Mean (SD) days	Median (days)	90th percentile (days)	Rx ≧ Dx	Include Rx < Dx[2]
Total	1238	17.8 (32.3)	1.0	91.5	67%	75%
Time to DMARD therapy stratified by enrolment year in CATCH						
2007	58	19.8 (35.3)	0.0	95	64%	75%
2008	173	18.5 (32.6)	0.0	112	63%	74%
2009	205	16.9 (32.1)	1.0	90	67%	74%
2010	207	16.9 (28.4)	1.0	79	65%	71%
2011	162	20.6 (38.5)	0.5	122	67%	76%
2012	163	17.6 (31.9)	1.0	88	66%	73%
2013	139	17.7 (32.9)	1.0	66	71%	79%
2014	100	15.8 (28.7)	0.0	69	68%	79%
2015	31	14.1 (25.4)	0.0	78	72%	80%

[1]Limiting to patients treated at or after diagnosis (Rx ≧ Dx)
[2]Including patients treated before diagnosis (n=429)
DMARD: disease modifying anti-rheumatic drug; Dx: diagnosis, Rx: treatment, SD: standard deviation

Conclusions

- ➢ **Yearly follow-up & Gaps in care:**
  - ➢ Duration of follow-up impacts rates of follow up
  - ➢ Most patients seen yearly, small declines over time
  - ➢ Gaps in care also affected by length of follow-up/disease duration
  - ➢ Fewer gaps when shifting window from 12M to 14 M
- ➢ **Treatment:**
  - ➢ High percentage of patients on treatment, small decline over time
  - ➢ Duration of follow-up impacts percentage on treatment
  - ➢ Majority of patients treated with DMARD at first visit (median time to treatment 1 day)
  - ➢ Trend to increasing percentage of patients treated within 14 days over time
- ➢ **Overall: High adherence to measures in CATCH**
- ➢ Study findings provide benchmarks for these performance measures in Canada
- ➢ Findings will inform further testing of measures in other data sources (e.g. administrative and EMR data)

Limitations

- ➢ Follow-up (but not Rx) per protocol, likely biased % seen in yearly follow-up. Lower rates of follow-up likely seen in clinical practice.
- ➢ Healthcare visits outside of CATCH study not captured.
- ➢ Treatment reflects prescription, not what patient takes.

References

1. Barber CE et al. J Rheumatol 2016;43:530-40.
2. Wait Time Alliance (WTA). Available from: http://www.waittimealliance.ca/

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