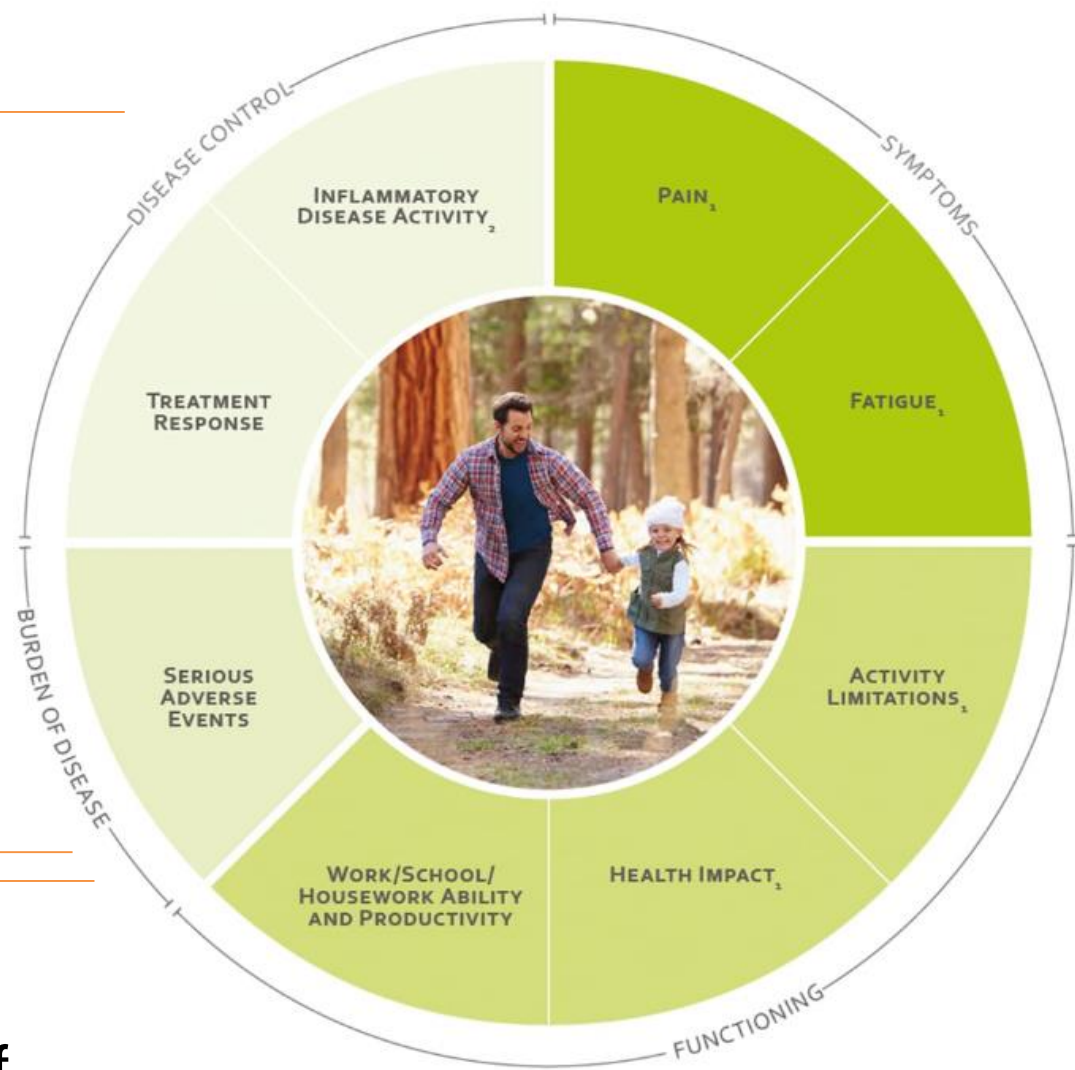# The Rheumatoid Arthritis Impact of Disease Questionnaire (RAID) as a triage tool for other PROMs aiming to save time and increase compliance

M van den Dikkenberg[1,2], TM Kuijper[1], MR Kok[1], D Lopes Barreto[1,2], AEAM Weel[1,2]

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Background

- Rheumatoid Arthritis is one of the most prevalent, burdensome and costly non-communicable diseases.
- The ICHOM Inflammatory Arthritis Set contains all domains that matter to RA patients; many domains assessed by Patient Reported Outcome Measures (PROMs).
- ICHOM PROMs however, are probably too broad for the individual patient, too time-consuming, and show reduced compliance over time.
- Therefore a quick and short triage tool, that covers most domains that matter, is desirable; like the Rheumatoid Arthritis Impact of Disease (RAID) 7-item questionnaire.

Aim

To assess the utilization of the RAID questionnaire as a triage tool for the most relevant PROM domains of the ICHOM Inflammatory Arthritis Set in chronic RA patients and assess the clinical implications.

Methods

Outpatient Rheumatology Maasstad Hospital, Rotterdam, NL

Real-life cohort 2017-2021

Adult (18+)
Chronic RA (>6 months)
Available PROMs; RAID, NRS pain, FACIT-F, HAQ-DI and EQ5D-5L

1. Select 1 item from the RAID per domain of ICHOM set

Best match between RAID-items and NRS pain, FACIT-F, HAQ-DI and EQ5D-5L.
- Correlation coefficient (Spearman's rho)
- Discriminative capacity (Area under the Curve)

2. Determine cut-off scores for these items

Norm-scores for ICHOM PROMs from literature to create Receiver Operating Characteristic (ROC). Optimal cut-off value for corresponding RAID-item based on
- Sensitivity > specificity
- Pre-specified sensitivity ≥ 90%

3. Assess clinical implications

Implication: only administer ICHOM PROM when scoring above corresponding RAID-item cut-off value.
- % potential PROMs and time saved per 1000 patients.

Results

687 patients
1982 observations

female 68.5%

Disease duration (years) 7.4 (2.8-11.2)[×]
Age (years) 61.6 (12.8)[×]

Disease activity score
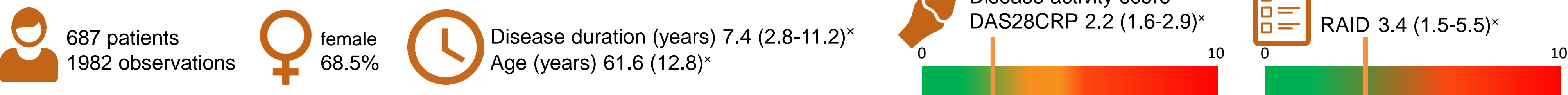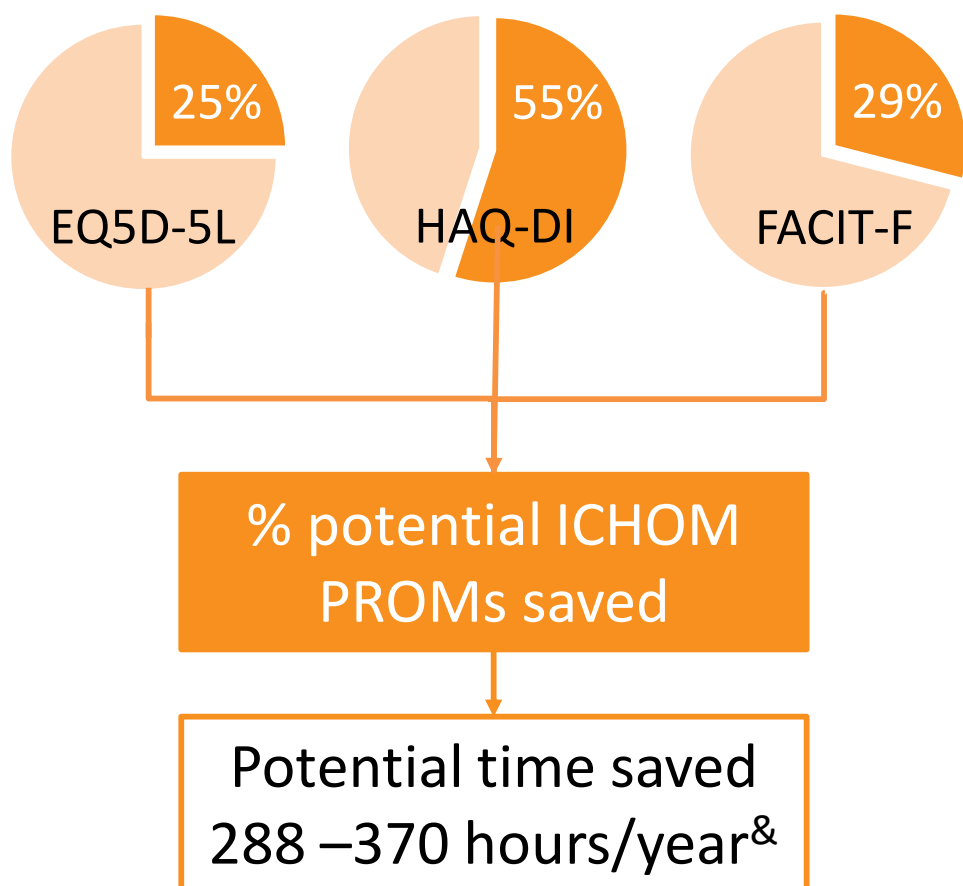DAS28CRP 2.2 (1.6-2.9)[×]

RAID 3.4 (1.5-5.5)[×]

Table 1. Details of PROMs and RAID-item matches, determined cut-off points and RAID-items

ICHOM Domain	ICHOM PROM	RAID-item	Correlation coefficient	AUC (95%CI)	Optimal cut-off	Sensitivity (95%CI)	Specificity (95%CI)
Pain[#]	NRS	Pain	1.00				
Fatigue	FACIT-F	Fatigue	0.79[*]	0.85 (0.84-0.87)	>4	0.90 (0.87-0.92)	0.64 (0.60-0.68)
Activity Limitations	HAQ-DI	Physical well-being	0.67[*]	0.86 (0.84-0.87)	>1	0.92 (0.89-0.94)	0.73 (0.70-0.76)
Health Impact	EQ5D-5L	Functional disability assessment	0.68[*]	0.85 (0.84-0.87)	>1	0.90 (0.87-0.91)	0.66 (0.62-0.71)

[#]Already measured with 1 question, further analysis not indicated. [*]=P<0,001, AUC=Area Under the Curve, CI=Confidence Interval, EQ5D-5L=5-Level-EQ5D ,FACIT-F=Functional Assessment of Chronic Illness Therapy-Fatigue, HAQ-DI=Health Assessment Questionnaire-Disability Index, NRS=Numeric Rating Scale, PROM=Patient Reported Outcome Measure, RAID=Rheumatoid Arthritis Impact of Disease.

25% EQ5D-5L
55% HAQ-DI
29% FACIT-F

% potential ICHOM PROMs saved

Potential time saved 288 –370 hours/year[&]

[&]Estimated score, based on the assumption that 1000 patients fill-out PROMs at least 2x/year

[×]All reported as median (Q1 – Q3)

Conclusions

All symptom and most functioning domains of the ICHOM Inflammatory Arthritis standard set can be triaged by only 4 items of the RAID, therefore the RAID can be used as triage tool, which will decrease time burden.

Recommendations

- When scoring above the RAID-item cut-off values, it is advised to offer patients the opportunity to fill-out the corresponding ICHOM PROMs.
- Future research should focus on the efficacy of the RAID as a triage tool in clinical practice.

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