# A novel approach to the early detection of axial spondyloarthritis in patients with inflammatory bowel disease: the implementation of an advanced practice physiotherapist-led screening program

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## Background

The prevalence of spondyloarthropathy (SpA) in patients with inflammatory bowel disease (IBD) ranges from 3.1 - 10%, compared to <1% in the general population, defining IBD patients as high risk for developing SpA[1].

Patients with suspected SpA can wait between 7-10 years to be diagnosed and begin treatment, making an effective and efficient early detection program a priority for this population[2].

Traditional referral pathways to rheumatologists are associated with lengthy wait times for non-urgent assessments. Up to 13 weeks on average[3].

A novel, non-physician based model of care was introduced at Toronto Western Hospital. Patients who have IBD and back pain were assessed by an advanced practice physiotherapist (APP) for SpA.

## Purpose

To implement and evaluate a unique screening program for IBD patients with suspected SpA, led by an APP.

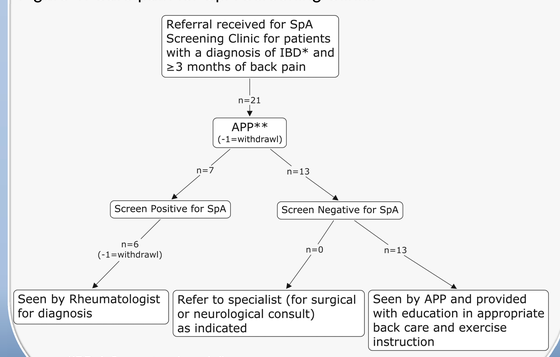
The objectives were to measure:

1) Wait times from the day of referral to the day of APP screening.
2) The clinical agreement of screening results between the APP and three Rheumatologists with expertise in SpA.
3) Assess agreement for recommendation of MRI between the APP and Rheumatologists
4) Compare the confidence of clinical judgment between the APP and rheumatologists.

## Methods

A description of the care path and referral system used in this study can be seen in Figure 1. Descriptive statistics described clinical characteristics and wait times. Kappa coefficient (k) measured inter-observer agreement and Pearson's Correlation compared confidence of the screening results of the APP and the rheumatologists. Paper patients were reviewed by the rheumatologists which comprised of clinical and investigative results of patients previously screened by the APP. Bivariate results were based on the analysis between the clinical judgement of the APP and the Rheumatologists.

Figure 1: Care path for SpA Screening Clinic.




*IBD=inflammatory bowel disease
**APP= Advanced Physiotherapy Practitioner

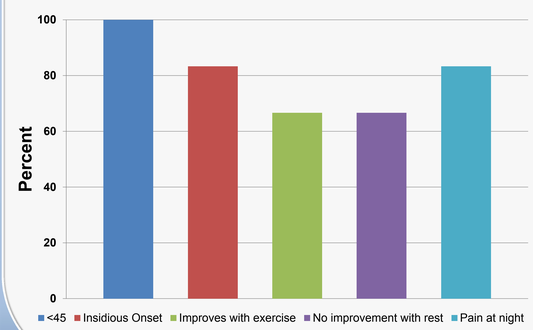
## Results

A total of 20 patients were referred to the screening program. Most patients were men (55%), and the mean age was 40.9 years ±11.8. The average duration of back pain was 9.8 years; 65% reported insidious onset. The mean Oswestry disability index was 20.3 (±13.5), indicating minimal disability resulting from back pain. Comparison of confidence for screening results was 6.8/10 (higher values indicating higher level of confidence) for the APP versus an average confidence level of 6.4/10 for the three rheumatologists (Pearson's = 0.3).

Table 1: Demographics and clinical characteristics (n=20).

| **Demographics** | **N (%)** |
|---|---|
| Sex | Male 11 (55); Female 9 (45) |
| Post-secondary education | 15 (75) |
| Employed | 12 (60) |
| Age (Mean (STD)) | 40.85 (±11.83) |
| **Characteristics of Back Pain** | **N (%)** |
| Morning stiffness ≥30 minutes | 16 (80) |
| Improves with exercise | 9 (45) |
| Nocturnal back pain | 10 (50) |
| HLA-B27 positive | 1 (5) |
| BASMI (Mean (STD))[4] | 2.01 (± 0.63) |
| **Responsiveness to NSAIDS** | |
| • No NSAIDS/Not tolerated | 13 (65) |
| • Not better | 2 (10) |
| • Better | 5 (25) |
| **Peripheral Joint Involvement** | |
| • Arthralgia | 17 (85) |
| • Dactylitis | 2 (10) |
| • Heel pain | 9 (45) |
| **Extra-Articular Features:** | |
| • Uveitis/iritis | 4 (20) |
| • Crohn's disease | 14 (70) |
| • Ulcerative colitis | 5 (25) |
| • Psoriasis | 5 (25) |
| • Indeterminate colitis | 1 (5) |

Figure 2: Characteristics* of IBP for the 6 patients who screened positive when assessed by the APP.




*According to the ASAS 'Expert Criteria'[5]

Figure 3: Wait times for each stage of assessment. Calculation includes weekends and holidays.

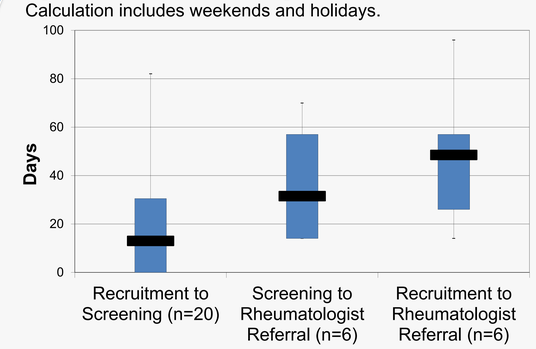



Table 2: APP concordance with Rheumatologists and the final consensus screening results* (n=20).

| **Variables (n=20)** | **Frequency (%)** | **Kappa (CI)** |
|---|---|---|
| **APP vs. Rheumatologist #1** | 80.00** | 0.52 (0.14-0.92) |
| **APP vs. Rheumatologist #2** | 66.67** | 0.59 (0.23-0.94) |
| **APP vs. Rheumatologist #3** | 66.67 | 0.43 (0.01-0.85) |
| **APP vs. Final Screening Consensus Result** | 71.43** | 0.53 (0.14-0.92) |

*of those that the PT diagnosed SpA- the Rheumatologist did as well
** Statistically significant result

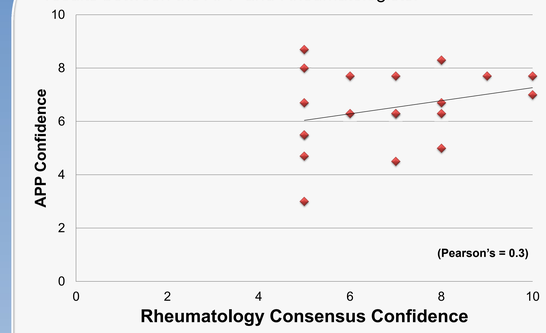
The APP agreed with the rheumatologists' screening results on an average of 71.4% (*k*=0.5; CI: 0.07-0.87) of patients.
The APP agreed with the rheumatologists to recommend MRI for further assessment on an average of 66.7% (*k*=0.6; CI: 0.23-0.94) of patients screened.

Table 3: APP MRI recommendation concordance with each Rheumatologist MRI recommendation and the MRI recommendation consensus* (n=20).

| **Variables (n=20)** | **Frequency (%)** | **Kappa (CI)** |
|---|---|---|
| **APP vs. Rheumatologist #1** | 66.67** | 0.59 (0.23-0.94) |
| **APP vs. Rheumatologist #2** | 60.00** | 0.50 (0.13-0.86) |
| **APP vs. Rheumatologist #3** | 50.00 | 0.30 (-0.01-0.70) |
| **APP vs. MRI Recommendation Consensus** | 66.67** | 0.58 (0.23-0.94) |

*of those that the PT recommended MRI- the Rheumatologist did as well
** Statistically significant result

Figure 4: Comparison of confidence of screening results between the APP and Rheumatologists.




## Discussion

The utilization of the APP to screen for inflammatory back pain in patients with IBD demonstrates clinical judgement that is aligned with that of rheumatologists with expertise in SpA.

The level of confidence of the APP was similar to the rheumatologists'. The APP and the Rheumatologists agreed on diagnosis in a significant number of cases.

The incidence of IBP within the IBD cohort was 30%. These screening results were in-line with current literature[5]. From a sample of 20 patients, 7 showed signs of inflammatory back pain and 2 patients were then diagnosed with SpA.

Wait times to be screened by the APP are shorter than traditional referral pathways, as were wait times from recruitment to an appointment in the Rheumatology clinic.

## Conclusion

This screening strategy has the potential to improve access to care and act as a model of care for patients at high risk for SpA. Using an APP to screen for SpA has been demonstrated to reduce wait times, show similar agreement to that of a Rheumatologist and to be in-line with the current data reflecting the incidence of SpA in both at risk populations and when using IBP as a screening tool.

## Acknowledgements

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**References**

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