



# Positive ANA Referrals to Rheumatology Clinic: Utility of Triage System into Telemedicine Clinics

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## INTRODUCTION

- Antinuclear antibody (ANA) screening testing has a high background positivity and is the most common reason for referrals to rheumatology<sup>1</sup>
- ANA testing has high sensitivity for diagnosis of inflammatory rheumatic diseases, but is non-specific and can be elevated in a healthy population with prevalence of 15.9%<sup>2</sup>
- Most of patients referred for positive ANA do not have inflammatory rheumatic disease<sup>2</sup>
- A significant shortage of rheumatologists exists at MU Healthcare nationwide
  - Potential misuse of limited resources
- MU Rheumatology Clinic implemented a triage system:
  - \*\*DESCRIPTION OF TRIAGE SYSTEM\*\*
  - Prescreening medical records
  - Scheduling most of the positive ANA referrals for telemedicine appointments

## OBJECTIVES

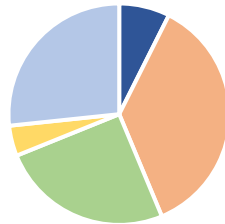
To assess the MU rheumatology triage system's effectiveness in assigning new patients with low likelihood of rheumatologic disease to new patient telehealth visits.

## METHODS

- Retrospective chart review from January 2022 to December 2022
  - Inclusion criteria: new patient visit assigned to rheumatology clinic as telemedicine visit, documented ANA
  - Exclusion criteria: non-telemedicine appointments, return visits, no recorded ANA
- We recorded all relevant descriptive and referral and the ultimate diagnoses reached
  - Final diagnosis coding:
    - Inflammatory rheumatic disease
    - Chronic widespread pain/ Fibromyalgia
    - Non-inflammatory regional MSK problem
    - Osteoarthritis
    - Misc non-rheum condition

## RESULTS

### Distribution of Diagnoses



- Inflammatory rheumatic disease
- Chronic widespread pain/ Fibromyalgia
- Non-inflammatory regional MSK problem
- Osteoarthritis
- Misc non-rheum condition

Follow-up	Value	Percentage
Required in person follow-up	26	19%
Follow-up not needed	109	81%

**Table 1. ANA Titer Value Distribution**

Reported ANA Titer	No. of Patients	No. of Patients with IRH
<1:80 (negative)	20	2
1:80	10	0
1:160	8	0
1:320	27	5
1:640	18	0
1:1280	50	3
unk positive titer	2	0

IRH = Inflammatory Rheumatic Disease

**Table 2. Suspected Diagnosis versus Final Diagnosis**

Referral - Suspected Diagnosis	n	Ultimate Diagnosis
Systemic Lupus Erythematosus	54	Inflammatory rheumatic disease (2), Fibromyalgia (16), Non-inflamm MSK (16), Misc non-rheum condition (20)
Rheumatoid Arthritis	23	Inflammatory rheumatic disease (2), Fibromyalgia (7), Osteoarthritis (5), Non-inflamm MSK (7), Misc non-rheum condition (3)
Unspecified Connective Tissue Disease	32	Inflammatory rheumatic disease (3), Fibromyalgia (14), Osteoarthritis (1), Non-inflamm MSK (8), Misc non-rheum condition (6)
Spondyloarthritis	3	Fibromyalgia (1), Misc non-rheum condition (2)
Sjogren's	2	Inflammatory rheumatic disease (1), Misc non-rheum condition (1)
Vasculitis	2	Misc non-rheum condition (2)
Scleroderma	3	Fibromyalgia (1), Misc non-rheum condition (2)
Psoriatic arthritis	4	Inflammatory rheumatic disease (1), Fibromyalgia (3)
Polymyalgia rheumatica	3	Fibromyalgia (1), Non-inflamm MSK (1), Misc non-rheum condition (2)
Other	9	Fibromyalgia (6), Non-inflamm MSK (2), Misc non-rheum condition (1)

ANA = antinuclear antibody; MSK = musculoskeletal

## DISCUSSION

- Most patients (125/135, 93%) were found to have non-inflammatory conditions that are not necessarily managed by rheumatologists and do not require immunosuppressive therapy
- The most common reason for ordering ANA testing was widespread pain/ fibromyalgia (49/135, 38%)
- Overall accuracy of triage system
  - 93% accurately assigning non-rheumatic conditions
  - 81% accurately assigning patient's not requiring in patient assessment
- ANA values ranged from <1:40 to 1:1280, showing no significant association between ANA value and increased risk of inflammatory rheumatic disease in our population ( $p$ -value = 0.499)
  - No antinuclear antibody-associated rheumatic disease was identified in patients with an ANA 1:160 or lower.
- To our knowledge, first evaluation of an implemented triage system for rheumatology clinics
- Limitations:
  - Variability by referring clinicians and ANA values at outside laboratories
  - Subjectivity of final diagnosis
  - Single institution and no long-term follow-up

## CONCLUSION

- Our results indicate the high accuracy of the MU rheumatology triage system in assigning new patient referrals with a low risk of inflammatory rheumatic disease to telehealth appointments
- Adoption of universal rheumatology clinic triage systems for new patient referrals may reduce inappropriate utilization of clinic resources and physician burden

## References

- Abeles AM, Abeles M. The clinical utility of a positive antinuclear antibody test result. *Am J Med.* 2013;126(4):342-348.
- Patel V, Ko K, Dua AB. The impact of education and clinical decision support on the quality of positive antinuclear antibody referrals. *Clin Rheumatol.* 2021;40(7):2921-2925.