

## **Optimizing reflex extractable nuclear antigen (ENA) testing, with correlation to diagnostic yield for rheumatologic disease: A QI Project**

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At the Minneapolis VA, an anti-nuclear antibody (ANA) test can be ordered with reflex to antiextractable nuclear antigen (ENA) panel, in cases of suspicion for rheumatologic disease. Reflex ENA is performed at our site if ANA is positive at a titer of 1:80 or above, and costs approximately \$70 per test. Sequential ordering of ANA followed by the more specific ENA is a favored cost-effective strategy that is not thought to compromise clinical care (Ethington et al). Higher ANA titers are associated with increased probability of positive anti-ENA (Kang et al).

Our study aims to assess the incidence of rheumatologic diseases in patients with low titer positive ANA tests, in order to guide improvement to reflex ENA testing protocol. A single-center, retrospective, manual chart review was performed via electronic medical record in the Minneapolis VA system. Between 7/2023–7/2024, 1553 ANA tests and 689 ENA tests (236 [34%] ordered as reflex to ANA) were performed. A sample of the first 224 patients in alphabetical order by last name were manually reviewed from ANA titer result of 1:80, and first 192 patients from ANA titer of 1:160 (412 patients total).

Results of ANA and ENA serologies, presence or absence of rheumatologic disease diagnosis, and presence of rheumatology referral/consult were evaluated. Data were analyzed using Chi-square test in Microsoft Excel.

Our study found that in patients with low titer positive ANA tests, rheumatologic diagnoses occur with similar frequency in patients with titer 1:160 and 1:80. Positive ENA result was not associated with higher likelihood of a rheumatologic diagnosis at ANA titers 1:80 and 1:160 in this sample. Many diagnoses associated with positive ANA were observed in this sample, supporting guidance that ANA and ENA testing should only be sent in cases of high clinical suspicion (Yazdany et al), in order to reduce rheumatology referrals and healthcare costs.

Further information is needed to determine whether implementing a higher ANA titer threshold to automatic ENA reflex testing.