

**Uptake and Clinical Utility of the Multi-Biomarker Disease Activity Testing in the U.S.**

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**Objective:**

The clinical utility of the MBDA test for rheumatoid arthritis (RA) management has not been thoroughly studied. The goals of this study were to analyze commercial Vectra tests and the large body of longitudinal 2011-2015 claims data from the Center for Medicare and Medicaid Services to:

- Describe the uptake of the MBDA testing by U.S. rheumatologists and the pattern of MBDA test use in RA patients enrolled in Medicare
- Evaluate the likelihood of RA treatment switching in relation to the MBDA score
- Examine lack of improvement in the MBDA score as a predictor of future treatment failure

**Design & Methods:**

- Using 2011-2015 Medicare data, each RA patient was linked to his/her MBDA test result.
- Initiation, adding or switching of a biologic or Janus Kinase Inhibitor [JAKi] in the 6 months following MBDA testing, was examined in relation to the MBDA score.
- For patients with high MBDA scores who added a new RA therapy and were subsequently re-tested, lack of improvement in the MBDA score was evaluated as a predictor of future treatment change.

**Background:**

- The MBDA score is an objective molecular measure of disease activity based on an algorithmic assessment of 12 serum biomarkers.
- The MBDA score is reported on a scale of 1-100 with categories of high (>44), moderate (30-44), and low (< 30) disease activity. Patients in the high or moderate categories are considered to have active disease and an increased risk of radiographic progression, and it may be appropriate to change or intensify their treatment.

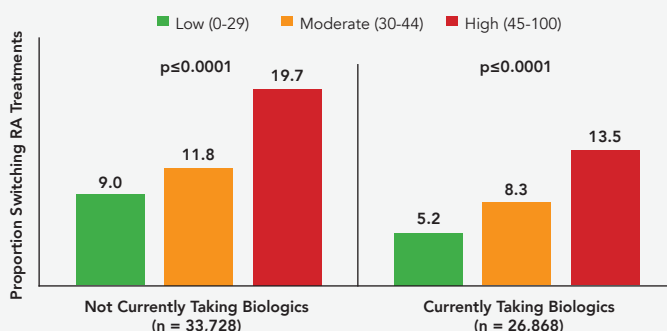
**Conclusions:**

Through an analysis of Medicare claims data, the multi-biomarker disease activity (MBDA) score was shown to be associated with the initiation/addition/switching of biologic and JAKi medication and subsequent treatment outcomes.

**Significant Findings**

- Between 2011 and 2015 more than 75,000 RA patients with fee-for-service Medicare coverage had received at least one MBDA test, and more than 125,000 MBDA tests were performed, demonstrating a rapid increase in utilization of the test from commercial introduction through 2015.
- A strong association was found between the MBDA score and the likelihood of subsequently initiating a biologic or JAKi. Among patients not receiving biologics/JAKi at baseline, the likelihood of initiating a biologic or JAKi was highest for those with high MBDA scores compared to those with a moderate or low MBDA score.
- The odds of adding or switching to a biologic or JAKi for those already on a biologic/JAKi were also highest among those with high MBDA scores.
- For patients whose MBDA score started high and remained high after retesting, the likelihood of subsequent RA treatment failure (defined as a treatment change reported in the Medicare database) was 1.61-fold greater compared to patients whose MBDA score category improved to low or moderate.

**Biologics Were Started or Switched Most Often When Vectra Score Was High**



The MBDA score may have been a catalyst for changing RA treatments, and may be considered a tool for use with clinical assessment to optimize treatment decision-making and patient care.