Real-world Utilization of a Novel Multi-Analyte Blood-Based Biomarker Panel, the Octave® Multiple Sclerosis Disease Activity (MSDA) Test in Clinical Practice Across the United States

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Introduction

The complexity of multiple sclerosis (MS) underscores the urgent need for reliable and accessible biomarkers to improve disease management and patient care. Blood-based biomarkers offer a minimally invasive, cost-effective, and scalable solution for monitoring disease activity (DA) and guiding personalized treatment strategies. They hold potential for identifying inflammatory and neurodegenerative processes, treatment response, and subclinical disease activity. Incorporating them into routine care can enhance early diagnosis, optimize therapeutic interventions, and improve long-term outcomes for individuals living with MS.[1]

Objectives

To describe the real-world utilization of the Octave® Multiple Sclerosis Disease Activity (MSDA) Test, a clinically validated, multi-analyte, blood-based biomarker panel for MS in clinical practice across the United States (US).

Methods

The Octave® MSDA Test provides a quantitative, objective, validated disease activity (DA) score with established thresholds corresponding to low (1.0–4.0), moderate (4.5–7.0), and high (7.5–10) levels of disease activity *(Figure 1)*.

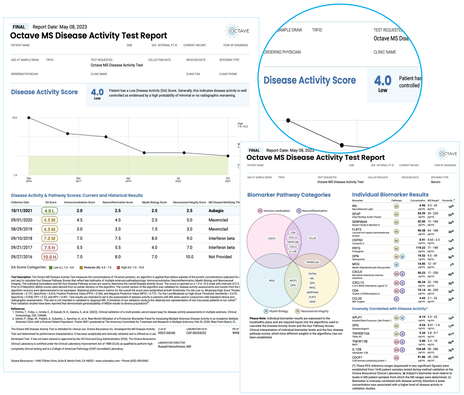

Figure 1:Example Octave® MSDA Test report.

Total tests	20,770
Total patients	15,040
Gender	
Female	77.2%
Male	22.8%
Age at baseline (mean)	52 years
Disease duration (mean)	13.8 years
Race (n=8,911)[1]	
White	76.6%
Black or African American	14.7%
Other	8.7%
Ethnicity (n=8,059)[1]	
Hispanic	4.4%
Non-Hispanic	95.6%
DMT efficacy at last test (n=10,444)[2]	
High	44.4%
Moderate	15.0%
Low	6.2%
No current DMT	34.4%

Table 1: Patient Demographics and Disease Data.
[1]Patient data not reported: Race n=8,911; Ethnicity n=8,059
[2]Excludes DMT not entered (n=4,573) and Other/No Match (n=23)

We conducted a retrospective descriptive analysis of data elements collected and reported from the Octave® MSDA Test requisition form until September 2025. Demographic and disease related data includes gender, age, race and ethnicity, current disease modifying therapy (DMT), reason for test, and date of MS diagnosis.

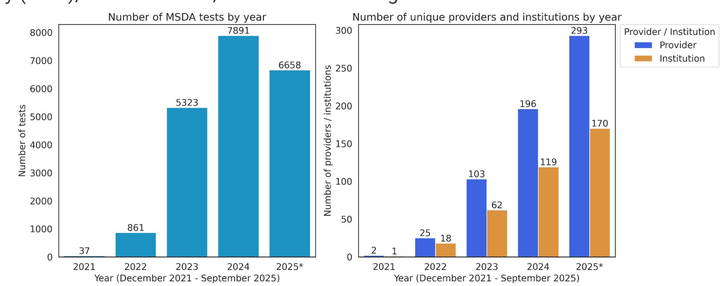

Figure 2: Number of MSDA tests (left), institutions, and unique providers(right) by year (*until September 2025)

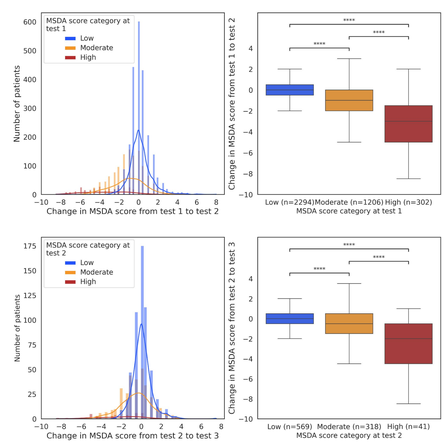

Figure 3: Change in MSDA scores between consecutive tests.

Left panels show histograms of the change in MSDA score between two tests, and right panels show boxplots of change in MSDA score between two tests by MSDA score categories. Only patients with at least a 3 month interval between consecutive tests were included in this analysis. Bonferroni-corrected p-values were calculated using Welch's t-test for pairwise group comparisons. Significance thresholds:
**** p < 0.0001 *** p < 0.001 ** p < 0.01 * p < 0.05 ns: not significant

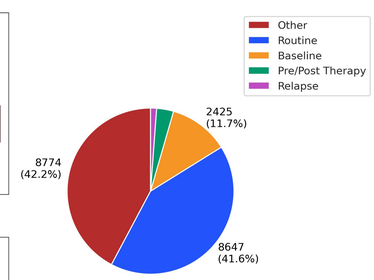

Figure 4: Percentage of MSDA tests by indication of use

* Primary reasons categorized under "Other" include relapse symptom assessment, longitudinal clinical monitoring, evaluation of DMT response, and additional clinician-specified indications.

Results

- **Demographics** | Baseline patient demographics include mean age 52 years; 77.2% female; mean disease duration 13.8 years; patient reported race and ethnicity 76.6% White, 14.7% Black, and 4.4% Hispanic. Of patients with HCP reported DMT use, 44.4% of patients were treated with a high efficacy DMT (anti-CD20s, natalizumab, cladribine, alemtuzumab) and 34.4% reported not currently on a DMT at their latest test *(Table 1)*.
- **MSDA Utilization** | The Octave® MSDA Test has been commercially available in the U.S. since March 2022. As of September 2025, we report on 15,040 MS patients tested with the Octave® MSDA Test. A total of 20,770 MSDA tests have been ordered from 197 institutions and 359 HCPs *(Figure 2)*.
- **MSDA Scores** | MSDA scores were 65.2% low, 28.5% moderate and 6.3% high. 72% of patients had 1 MSDA Test, 20.5% had 2 and 7.5% had ≥3 MSDA Tests. Significant differences in changes in MSDA scores were observed between Tests 1 and 2 and Tests 2 and 3 across all MSDA categories for tests ≥3 months apart (p<=0.0001). Mean score changes at test 2 were +0.2 for low, −1.0 for moderate, and −3.3 for high MSDA scores at Test 1. From Test 2 to Test 3, mean changes were +0.1, −0.6, and −2.4, respectively, for categories at Test 2 *(Figure 3)*. For high MSDA score tests, the mean score decrease exceeded the minimum detectable change threshold of 1.24, suggesting that effective therapeutic interventions occurred between the two tests. Top HCP-reported indications for testing included routine monitoring, baseline evaluation, pre/post therapy assessment,and relapse assessment *(Figure 4)*. MSDA scores are reported by DMT mechanism of action *(Figure 5)*.

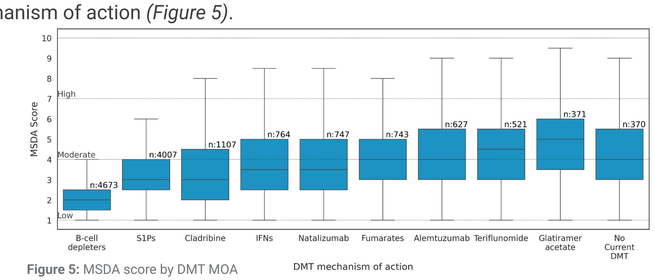

Figure 5: MSDA score by DMT MOA

Conclusions

This report highlights the increasing utilization of the Octave® MSDA Test in clinical practice across the US and its utility in informing provider decision-making. Continued research is critical to unlocking the full potential of the Octave® MSDA test, ensuring its seamless integration into clinical workflows and establishing the test as a critical tool to improve patient outcomes.

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References: Paul A, Comabella M, Gandhi R. Biomarkers in Multiple Sclerosis. Cold Spring Harb Perspect Med. 2019 Mar 1;9(3):a029058.

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