

**Title: Patient and healthcare professional perspectives of immune dynamics and MS disease-modifying therapies mode of action throughout COVID-19 pandemic****Authors:**

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**Abstract**

**Background:** Disease-modifying therapies (DMTs) for relapsing multiple sclerosis (RMS) modulate or deplete immune cells, including T and B cells. Healthcare professionals (HCPs) and patients consider many factors when selecting a DMT in a shared decision model, including efficacy, frequency/route of administration and safety. Patient understanding of mechanisms of action (MoA), and DMT effects on the dynamics and function of the immune system may be challenging to understand and further influenced by the COVID-19 pandemic, including risk interpretation and administration preferences.

**Objectives:** To assess the involvement of patients in MS treatment selection and the importance for patient understanding of MoA using a patient narrative approach, and to design a preliminary qualitative survey to inform future studies.

**Methods:** A preliminary qualitative survey was developed to explore factors most important to patients when considering DMTs, including patient understanding of immunological aspects of MS, MoAs, preferences regarding route of administration and provision of MS clinical information. Perspectives were sought from HCPs and patients on how this dialog has changed during the COVID-19 pandemic. The survey was distributed by email to 3 patients and 1 caregiver.

**Results:** Results are based on survey results and email correspondence from two adults with RMS, and an adolescent with pediatric MS and her caregiver. Overall, respondents felt they understood the general role of the immune system in MS and the role of DMTs but had poorer understanding of B and T cell functions and the impact of DMTs and their MoAs. Safety and efficacy were equally the most important variables when considering a new DMT. Face-to-face discussions between patients and HCPs were preferred to noninteractive materials; HCP authors (3 neurologists and 1 MS physician assistant) agreed that more face-to-face clinic time for dialog is needed. Patient independence was a key factor in preferences for methods of administration. Respondents reported an increase in MoA conversations in light of COVID-19.

**Conclusions:** While safety and efficacy are important in patients' considerations of DMTs, there is a clear need to increase understanding of MoAs when starting or switching DMTs; immunological knowledge has become increasingly important during the COVID-19 pandemic. The preliminary qualitative survey can be used to inform future studies of what is needed to improve communication on DMT MoAs.

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